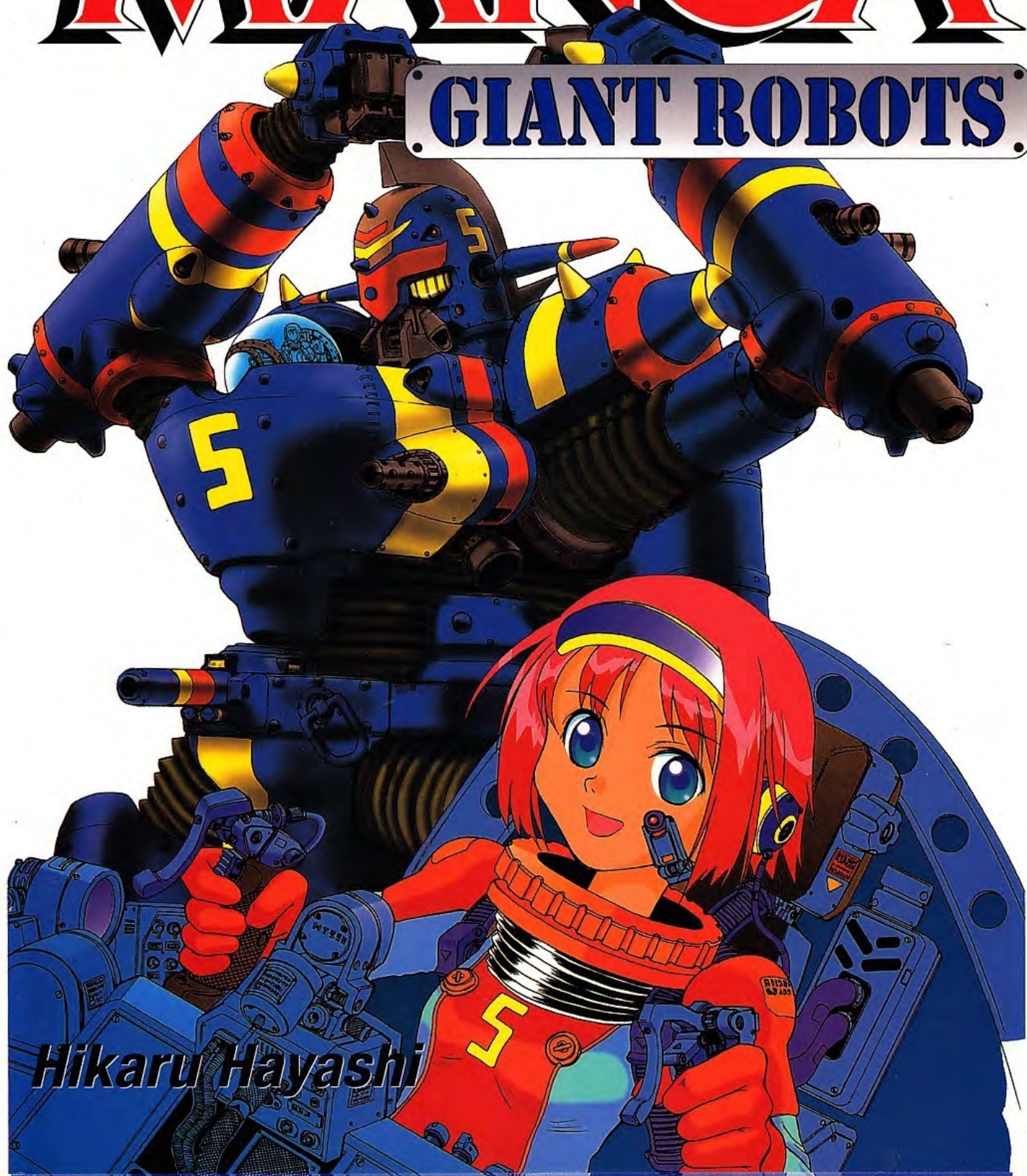


HOW TO DRAW

**SPECIAL
EDITION**

MANGA

GIANT ROBOTS!



Hikaru Hayashi

HOW TO DRAW

SPECIAL
EDITION

MANGA

GIANT ROBOTS

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by Hikaru Hayashi, Go Office

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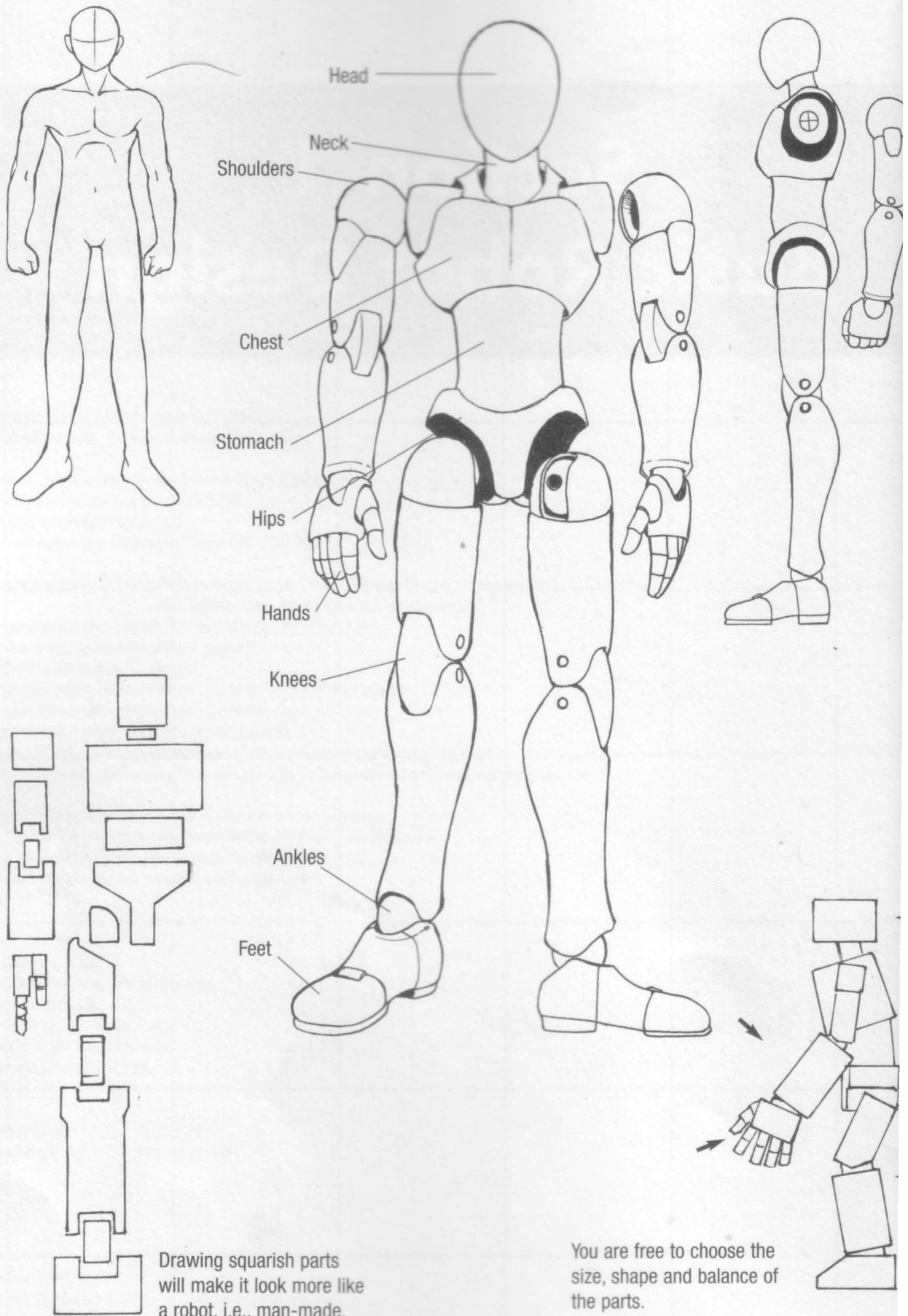
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Section 1

Basic Robot Design

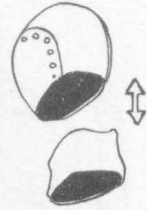
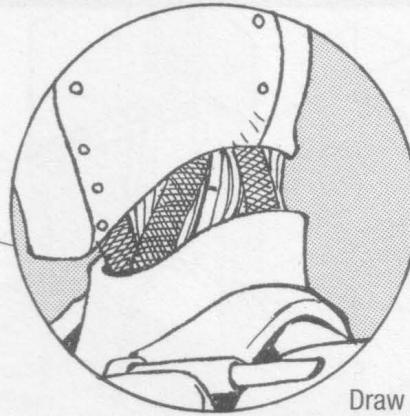
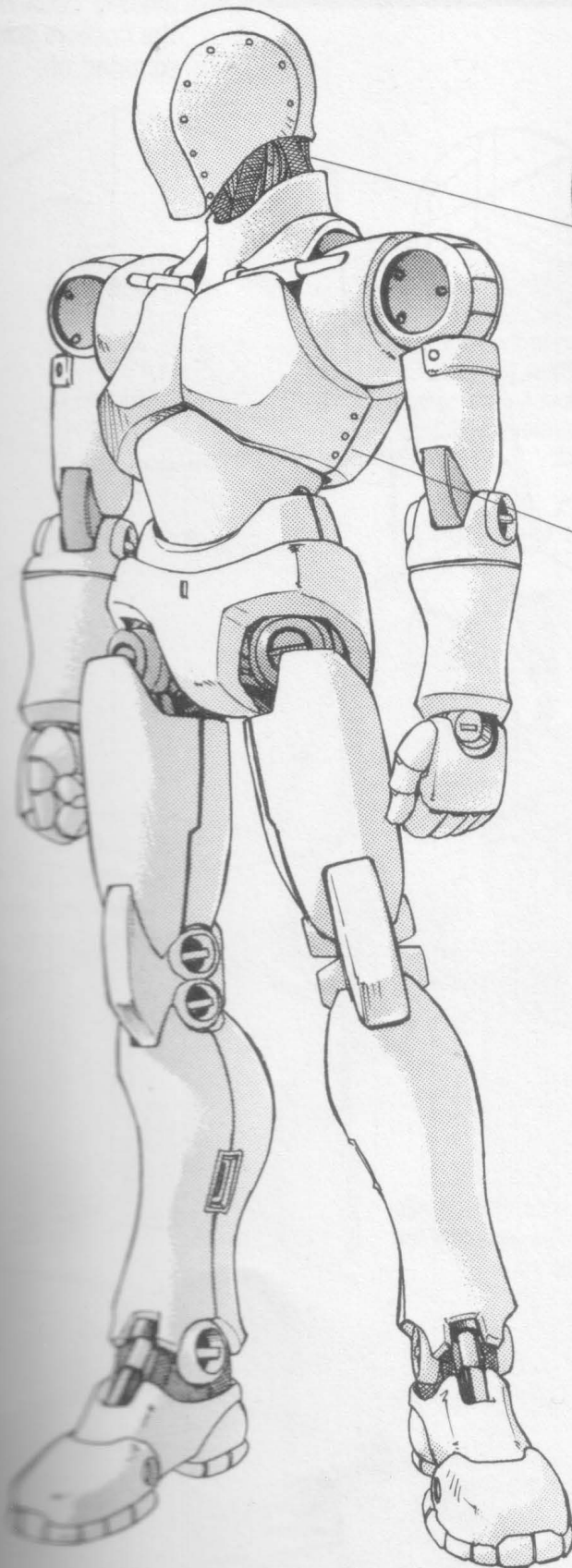
Full Body Start with a Human-shaped Figure

Think of the parts of the body with drawing.

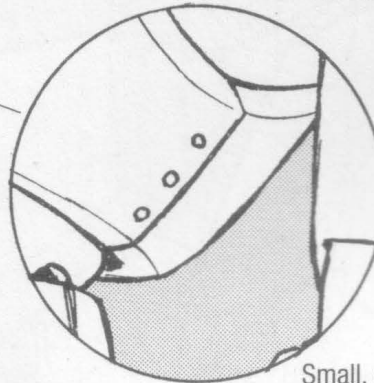


Draw Robot-like Figures Using Only Basic Parts.

- Draw big, bold joints.
- Give the surface a strong metallic contrast.

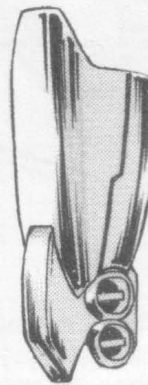


Draw joints in a way that makes it look like there are mechanical parts inside.

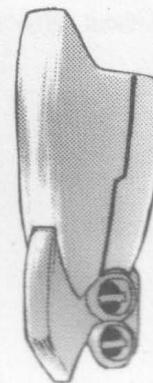


Small, evenly spaced circles resemble rivets.

Representation of metallic finish



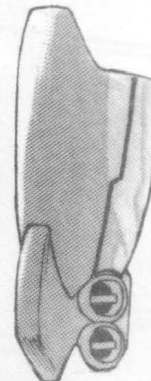
Solid
(emphasize shadows)



Light representation



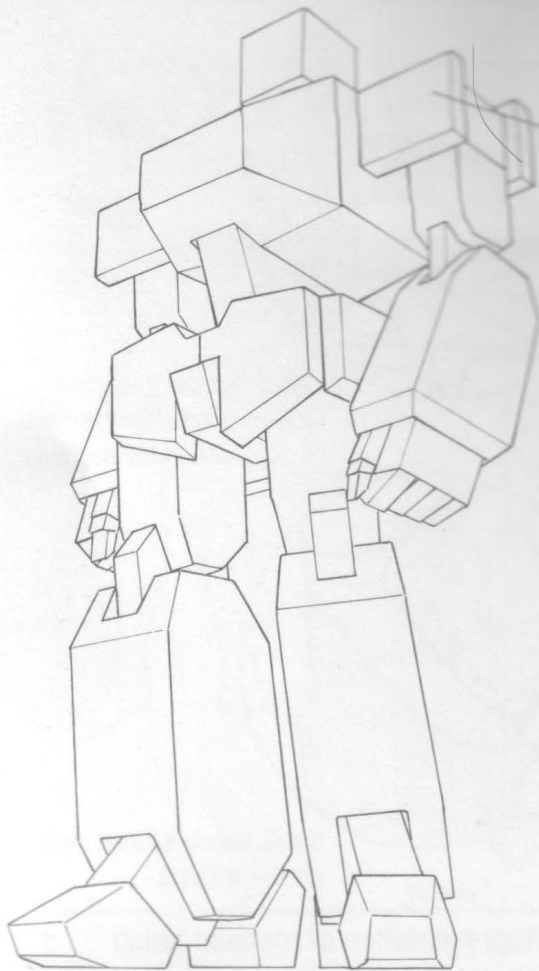
Gradation



Reflection

Full Body Robots Comprised of Parts with Straight Lines

A square part becomes a metallic looking cube when the corners are rounded off.



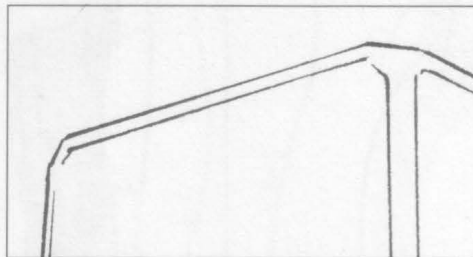
Robot without corners cut off



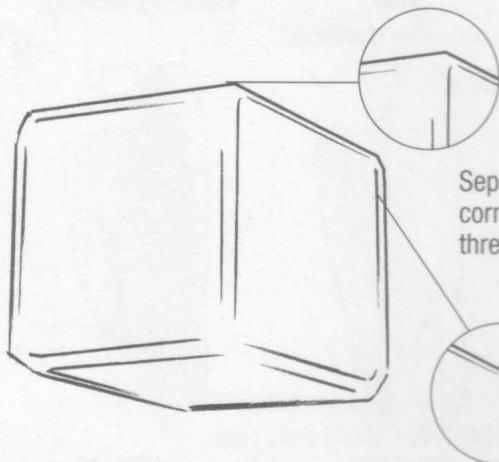
Drawing the edge lines narrower than the contour lines creates a three-dimensional effect.



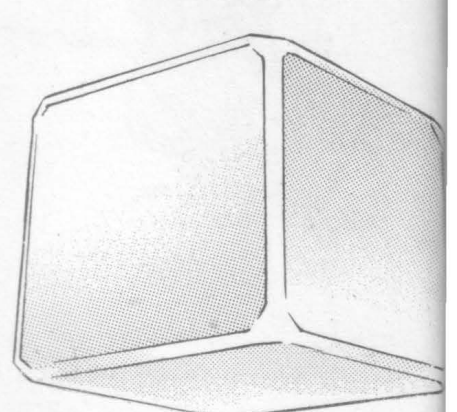
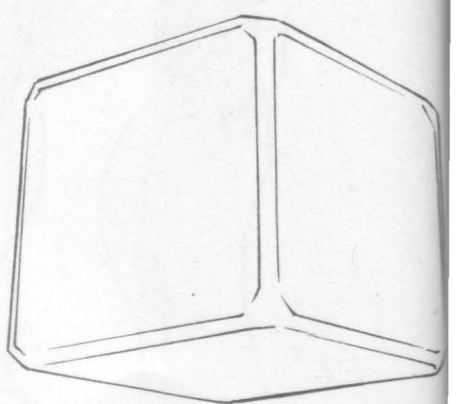
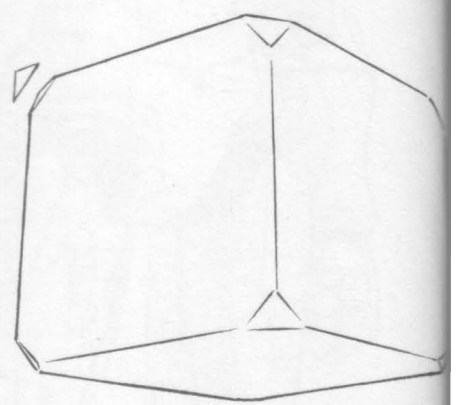
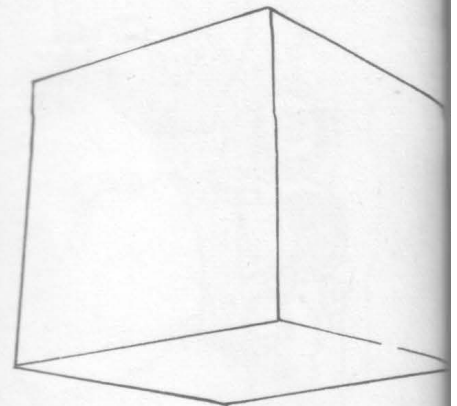
Cut diagonally.



Then draw dual contour lines. They should be close together. This helps represent the shine of a smooth metallic edge.



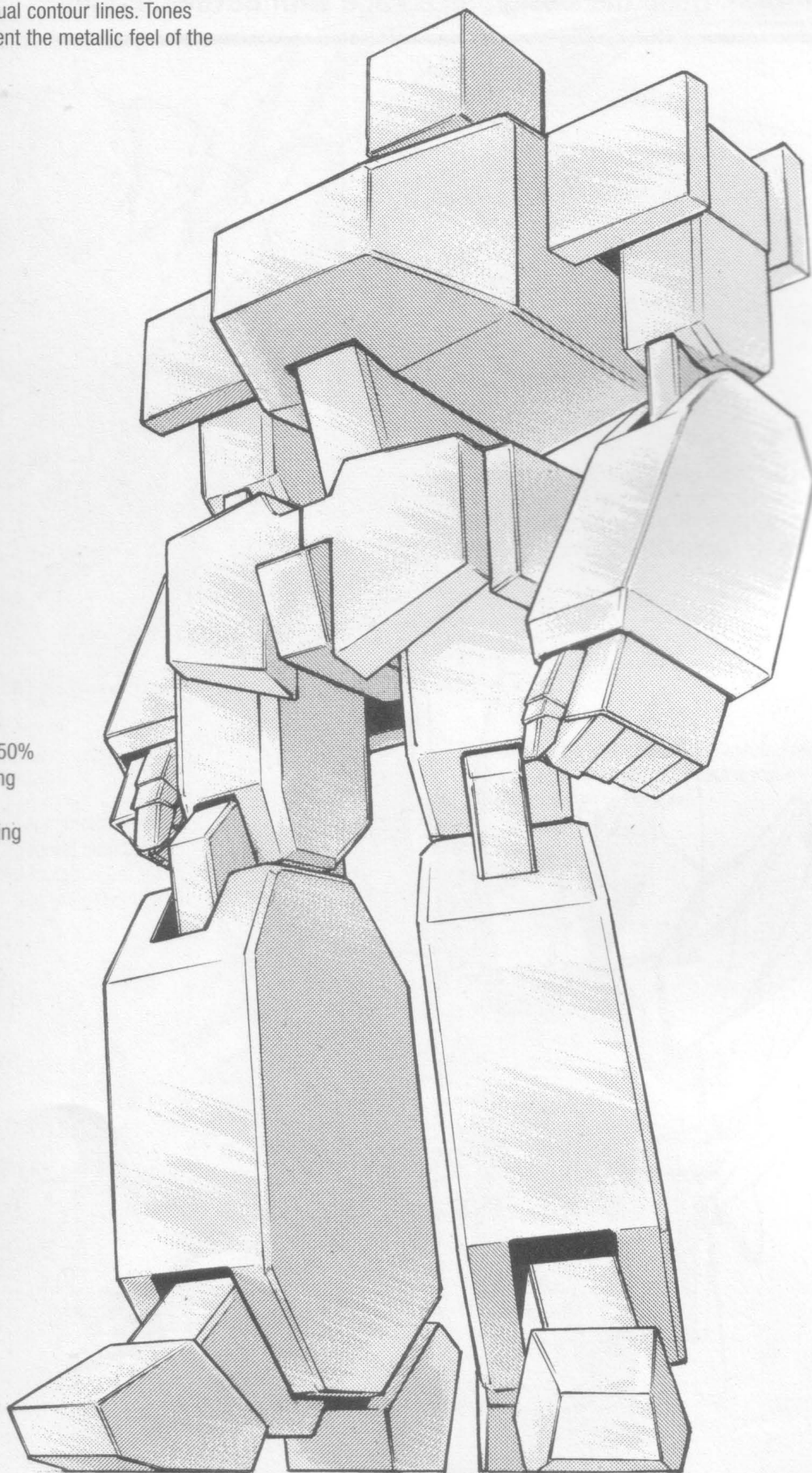
Separating the lines at the corners creates the same three-dimensional effect.

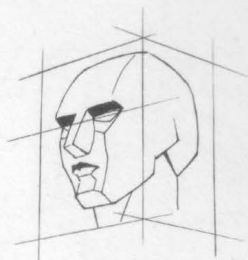


Example of finished block. Apply tone and plane.

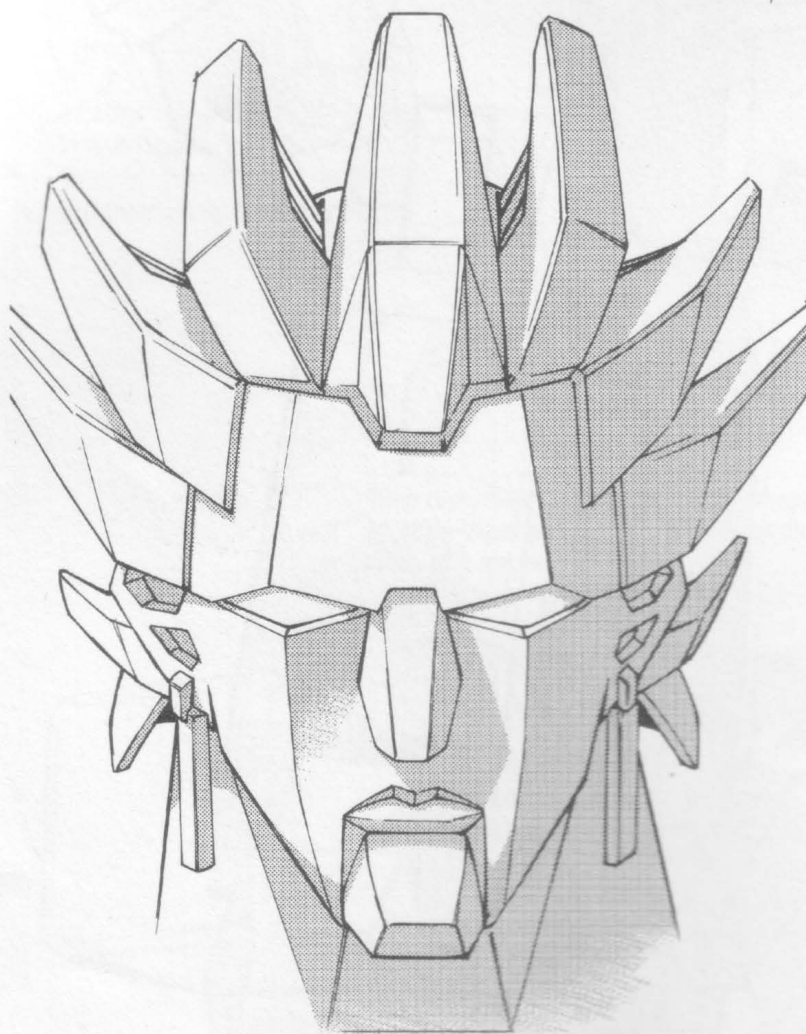
This robot was drawn by selectively removing corners and using dual contour lines. Tones were applied to accent the metallic feel of the surface.

The trick is to apply tones to only about 50% of the surface, leaving the other half white, thus creating a shining effect.





Since a beveled image simplifies the unevenness of the face/head and is blockish, it is easy to apply this effect to a robot head by making the lines sharp and giving it a metallic quality.

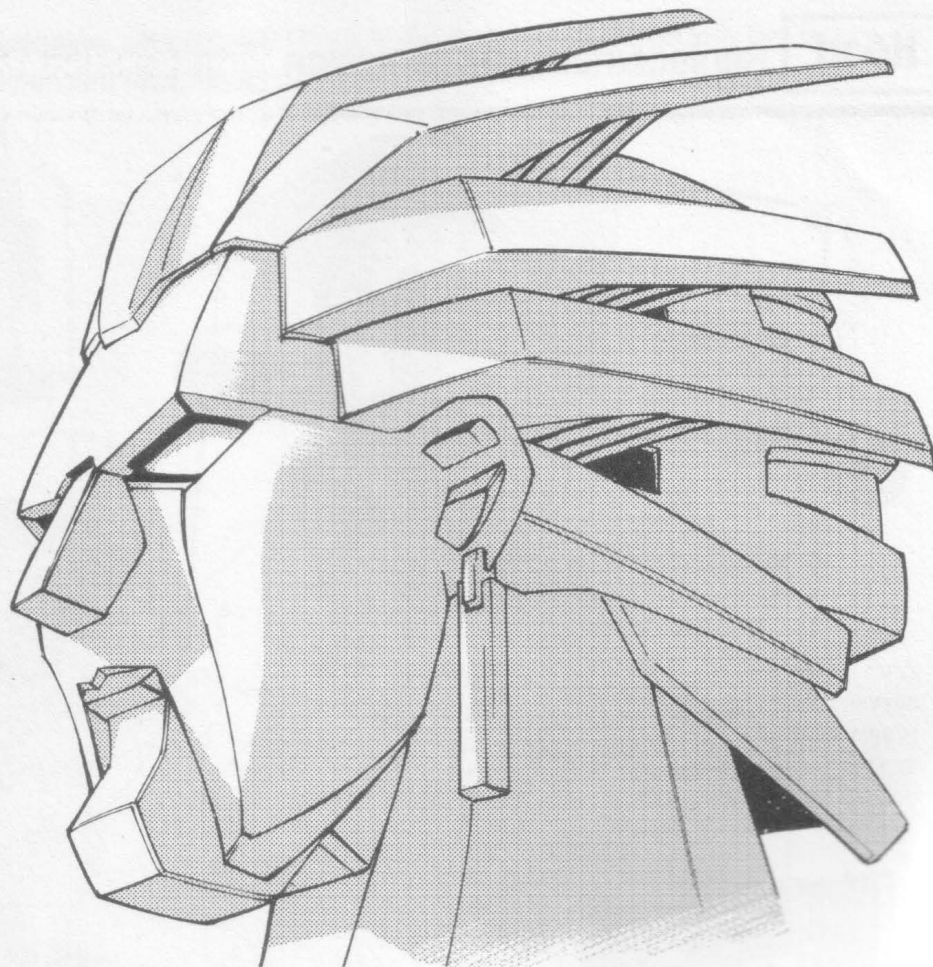


You can effectively express a metal-like cubic effect by using double lines for the edges of the part of the head signifying the hair.

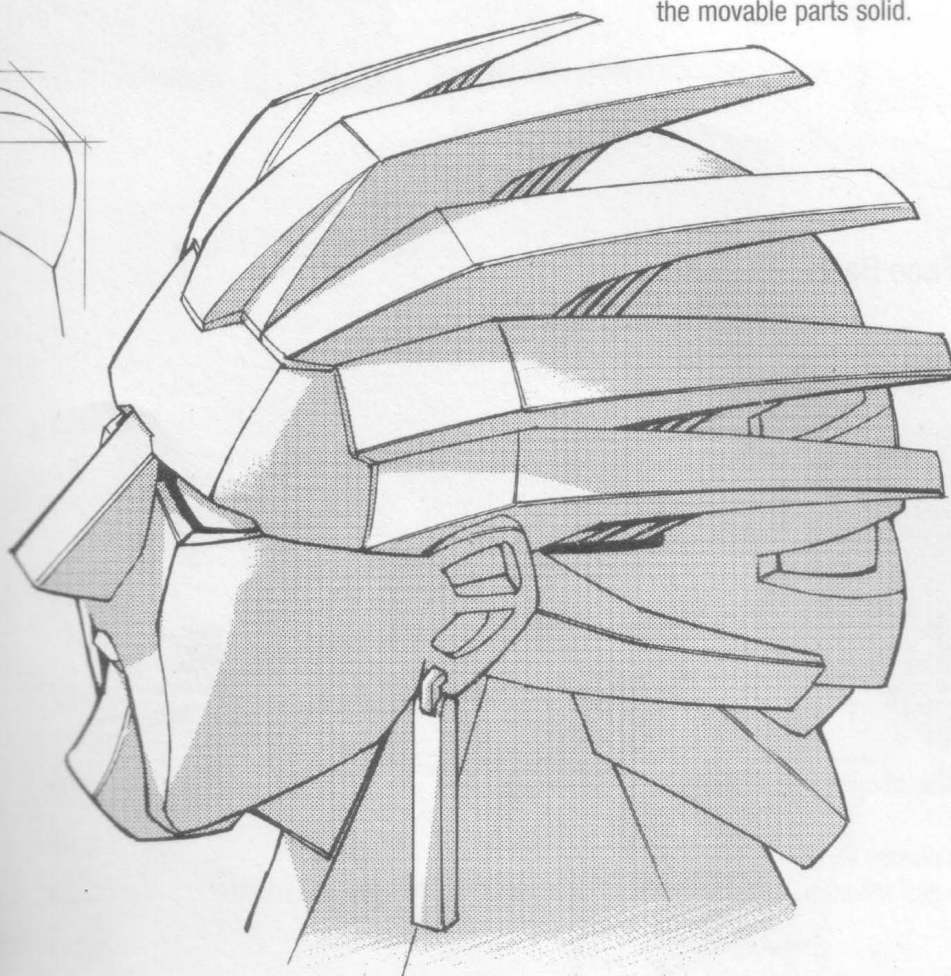




You can make it look like removable armor is covering the face of a robot by making some lines bold and some thin.



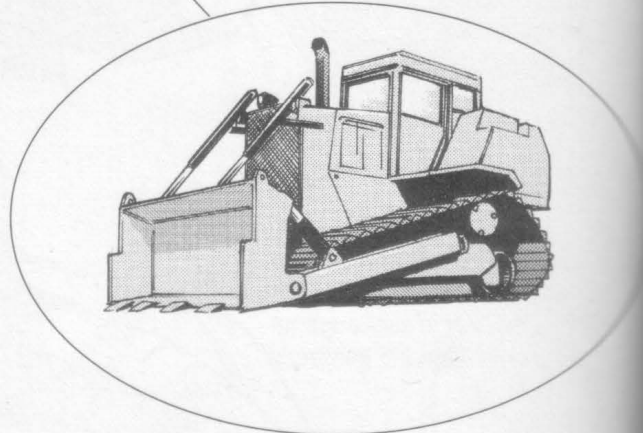
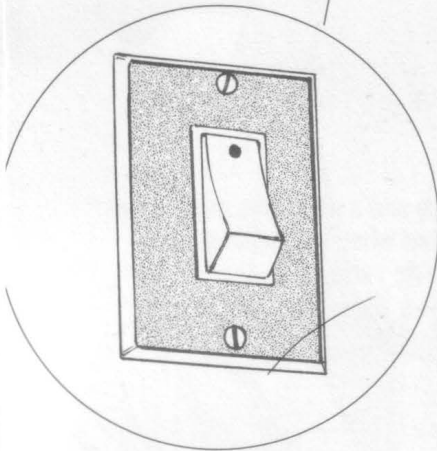
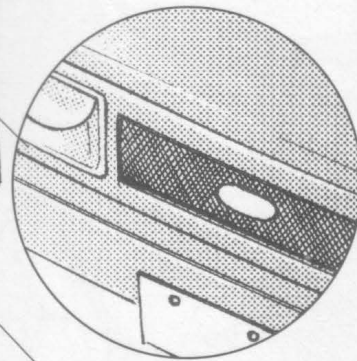
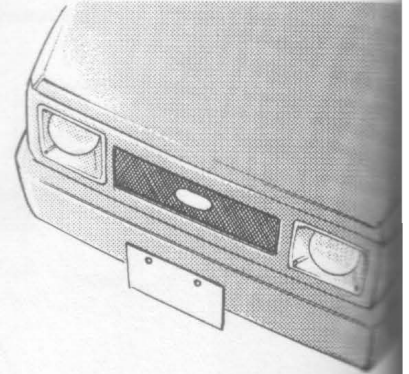
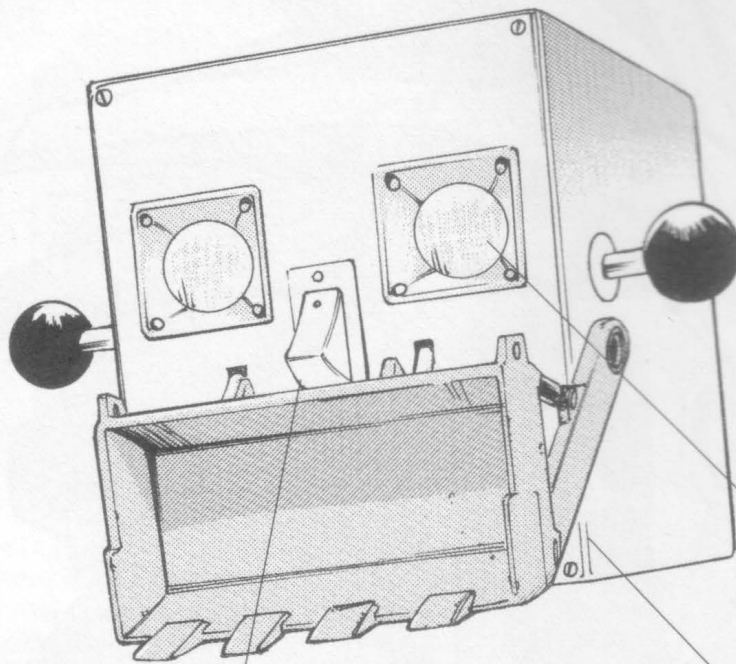
Heaviness and a robot-like molded feel are created when you make some of the movable parts solid.



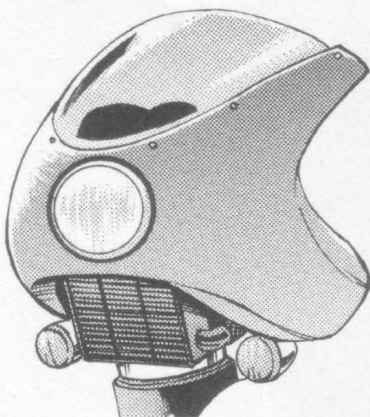
Head

Replacement and Omission

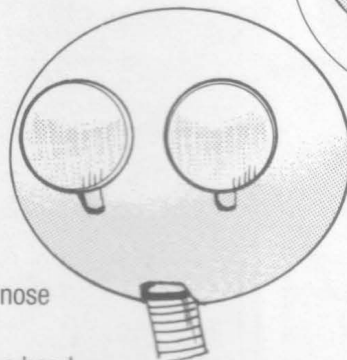
Replace the eyes, ears, nose and mouth with mechanical parts.



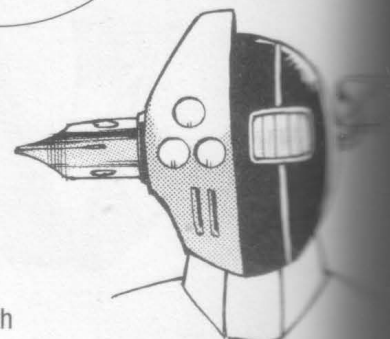
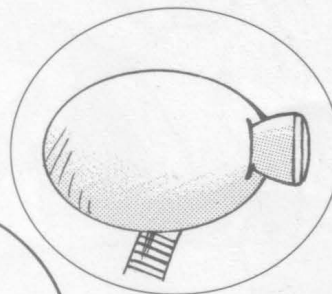
Omission of Face Parts



Omission of one eye and the nose



Omission of the nose and mouth

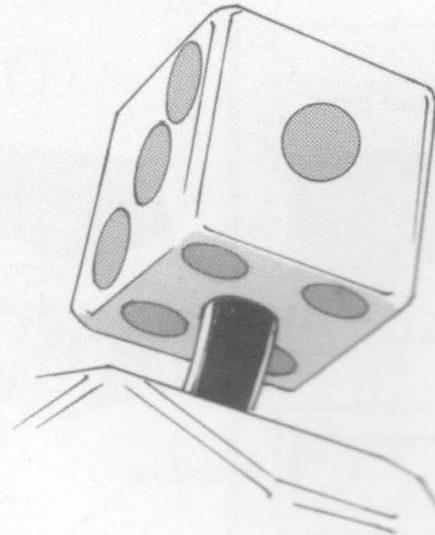
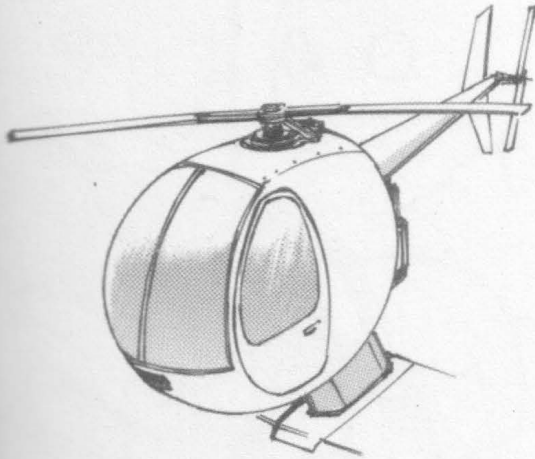
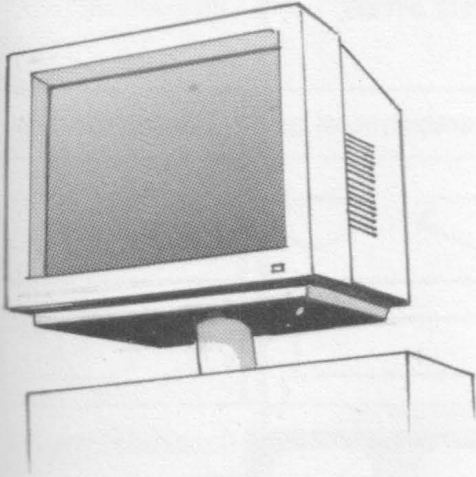


Asymmetrical

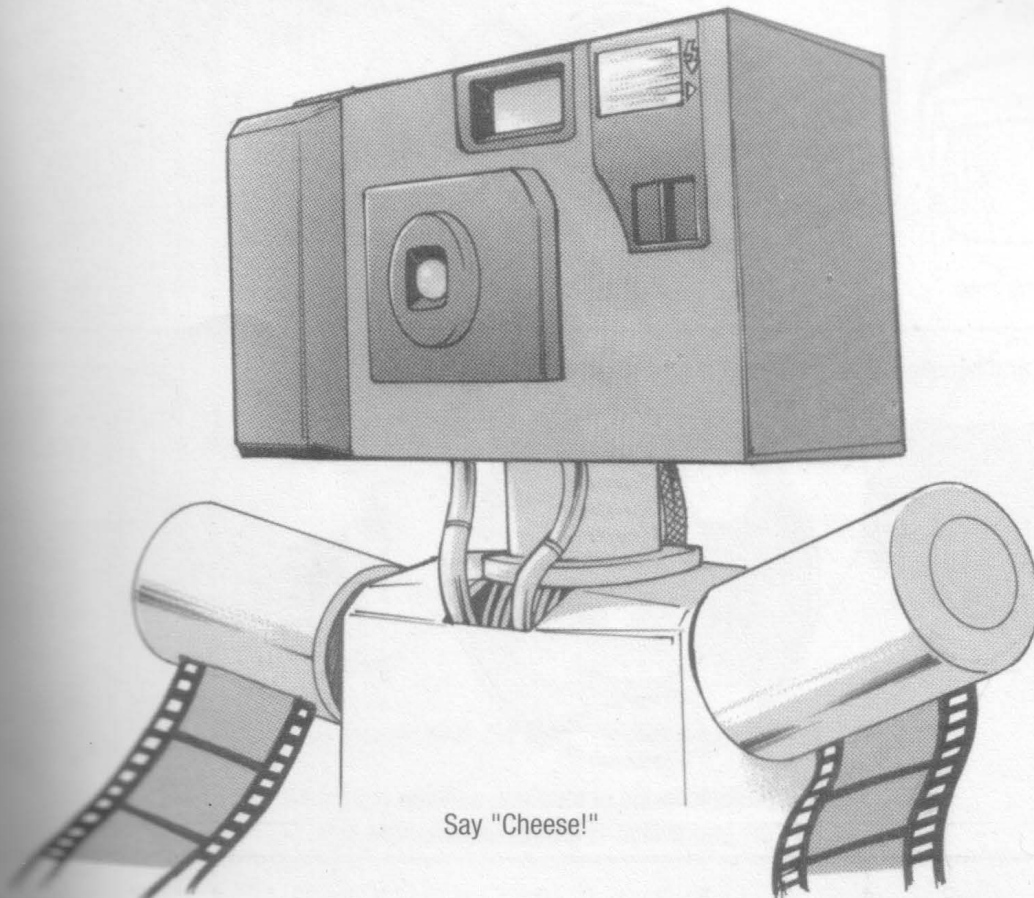
You are free to choose the shape of the head. The ears, nose and mouth are often omitted.

Replacement of the Head Itself

Use everyday objects to give your robot an unexpectedly familiar face.



You can also make a non-mechanical object look like a head.

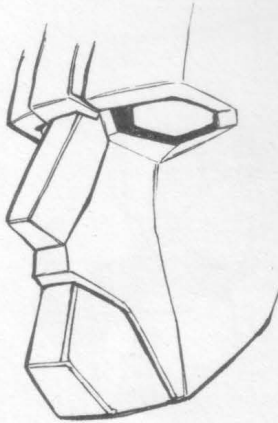


Say "Cheese!"

Head

Eye Shape and Size

The eyes are based on three basic shapes: triangles, squares and circles.

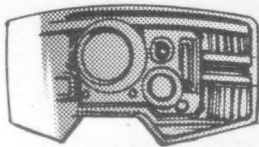


	Triangular/crescent type	Square/polygonal type	Round/oval type
Both eyes			
One eye			

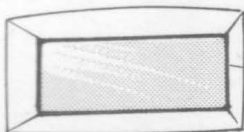
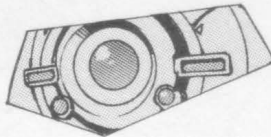
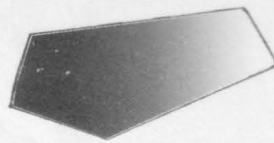


Combination/Goggles type

Mechanical Eyes

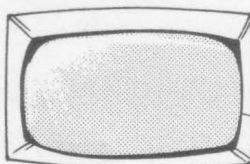


Goggles type



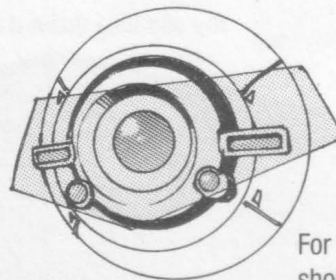
Straight line

Plate glass type

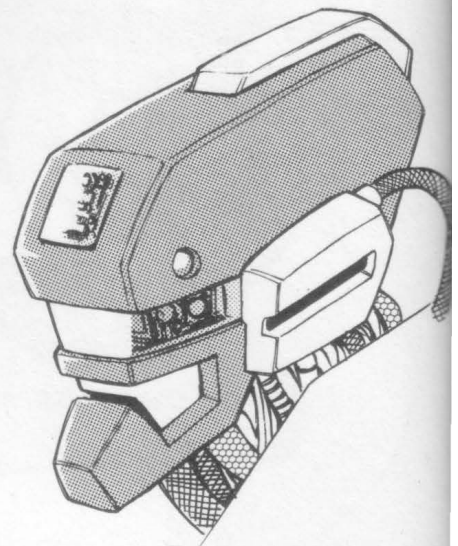


Curved line

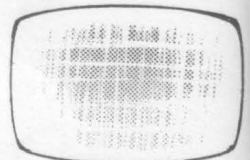
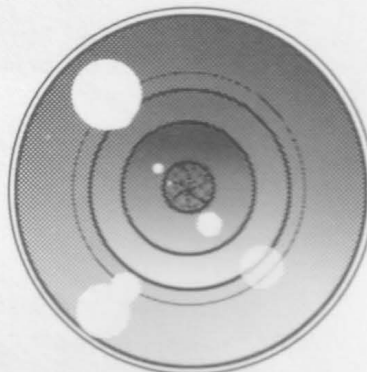
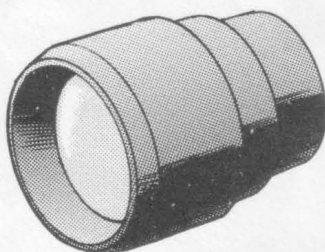
Spherical-lens type



For the round-lens type, you should draw an entire eyeball.



Camera lenses and headlights can be used for mechanical eyes.

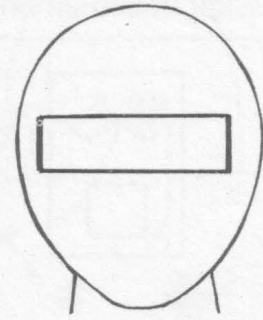
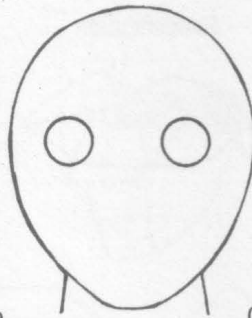
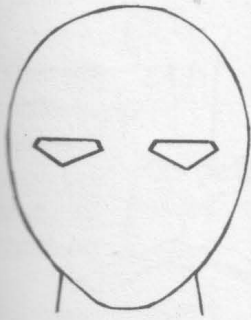


Use of multiple levels of tone and addition of light will create the impression of a three-dimensional lens.

Polygonal type

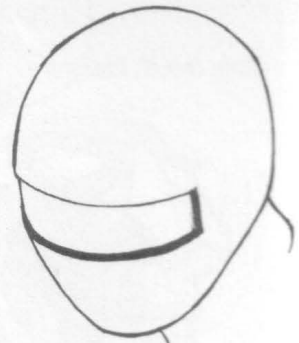
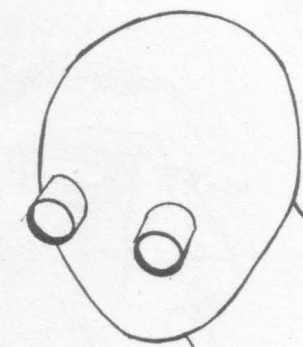
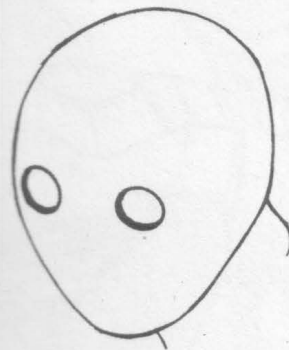
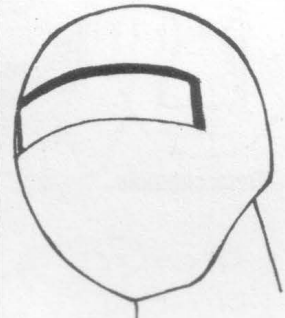
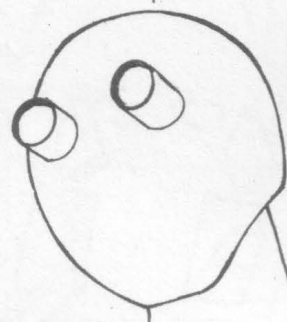
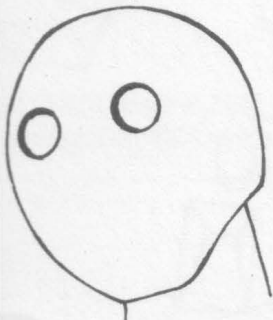
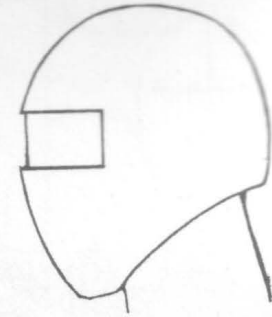
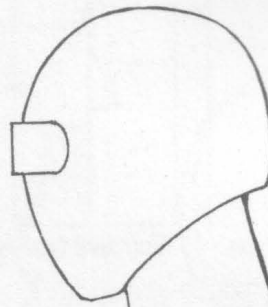
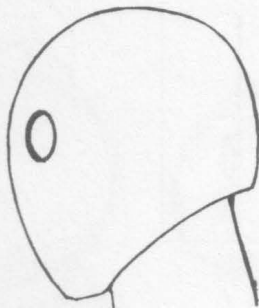
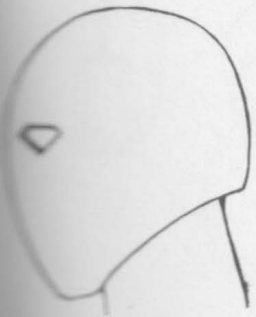
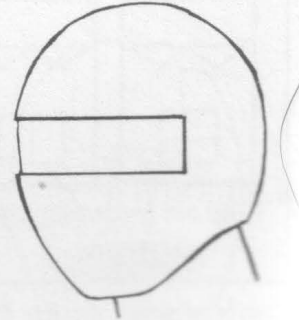
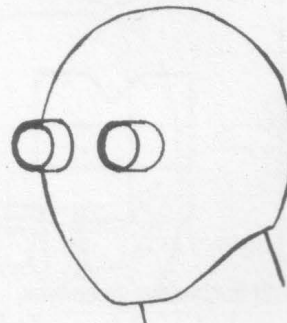
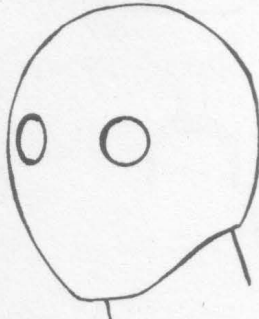
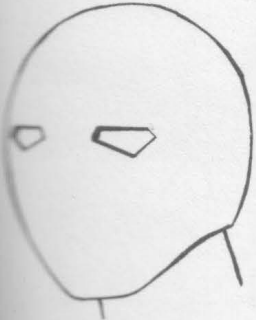
Round type

Rectangular type



Concave type

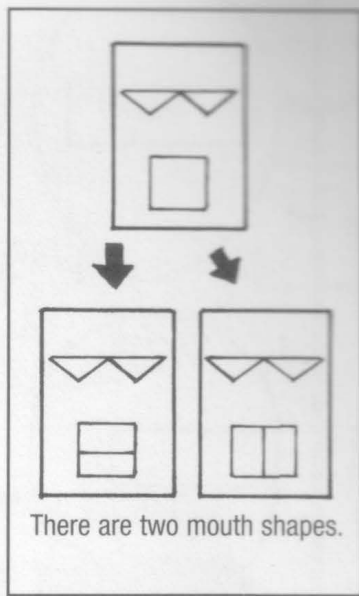
Convex type



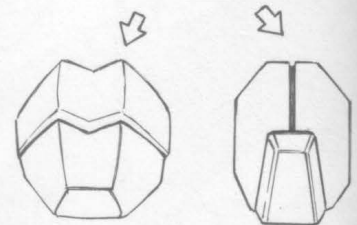
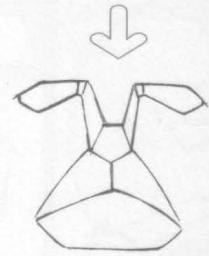
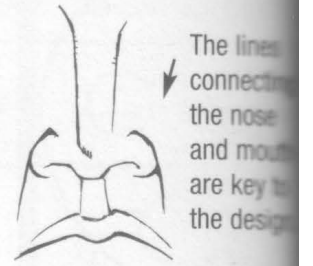
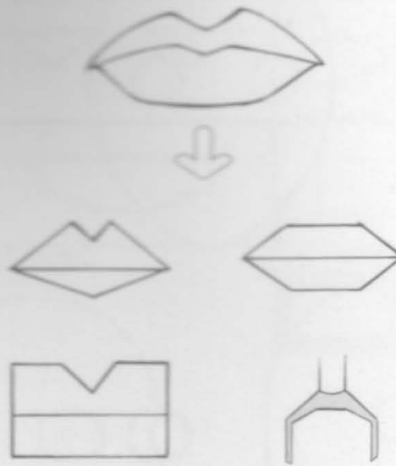
Decide whether the eyes are concave or convex.

There are two general approaches to drawing a robotic mouth: One is to consider the shape formed by the lines that connect the nose and mouth, while the other is to view the mouth in relationship to the overall structure of the head.

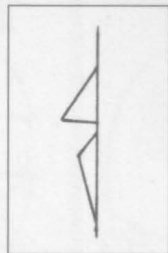
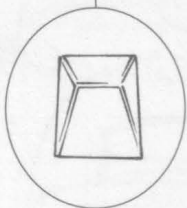
Design Based on Shape



Simplification



Clearly establish whether the mouth is concave or convex.



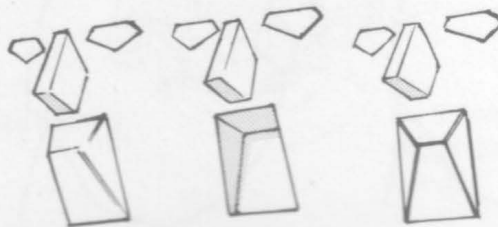
Convex type



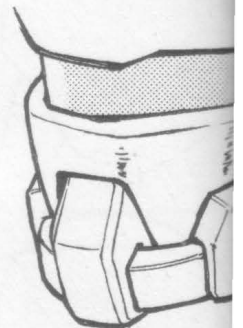
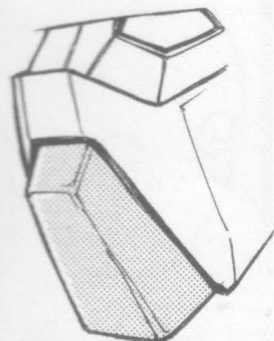
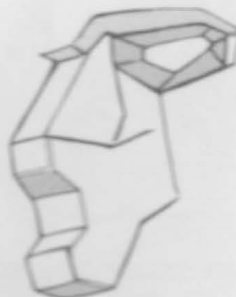
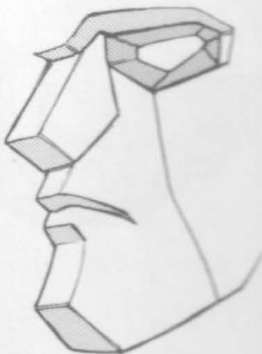
Concave type



Flat type



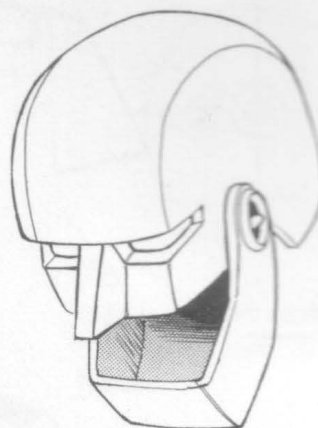
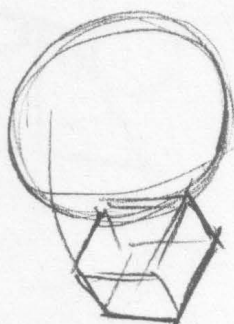
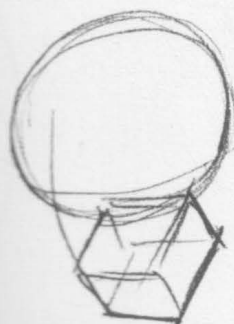
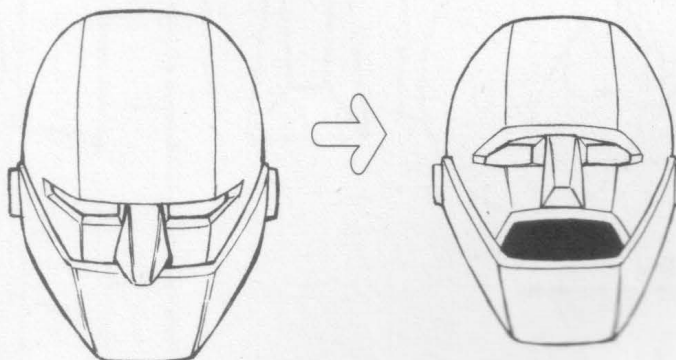
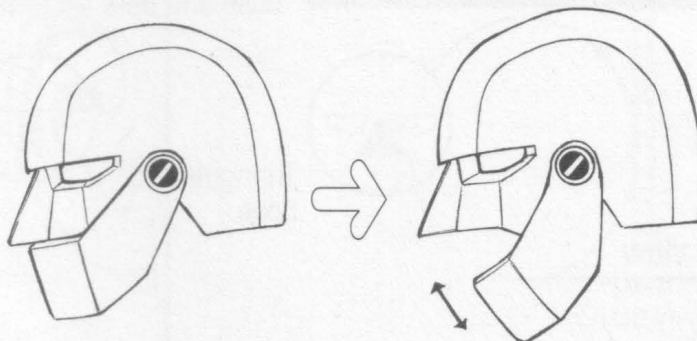
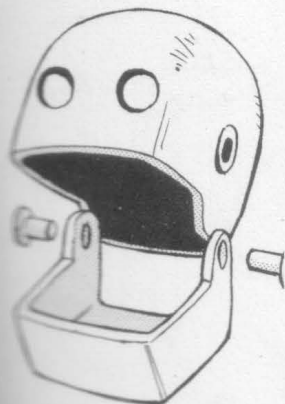
Other mouth designs



Design Based on Structure

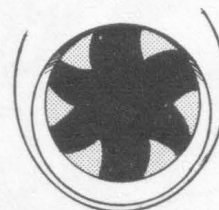
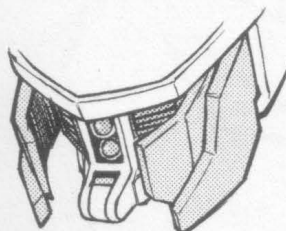
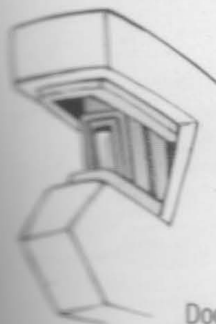
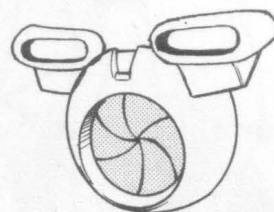
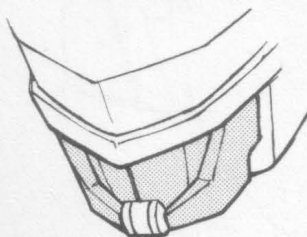


Use the shape of a human skull as a point of reference.



If the robot's mouth is open, the bottom should be shaded to create a sense of depth.

Door type



Door type
(moves left and right)

Circular shutter type
(opens and closes like a camera lens)

Head

Nose and Ears

Design the nose and ears based on basic beveled shapes. Or, don't draw them at all; professional manga artists often omit the nose and ears altogether.



Triangular nose

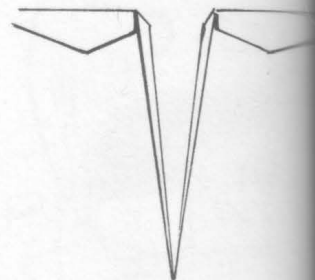
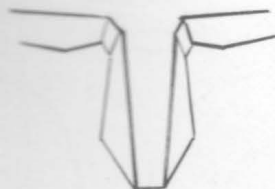
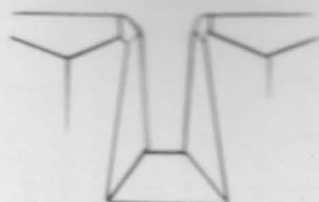


Rectangular nose



Inverted-triangular nose

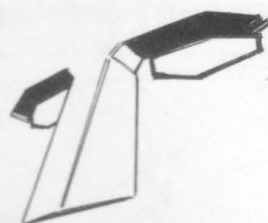
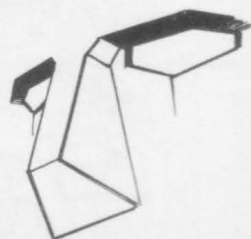
Front view



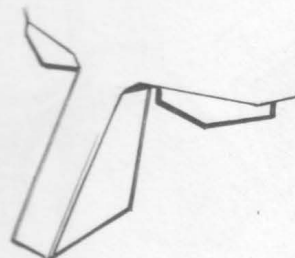
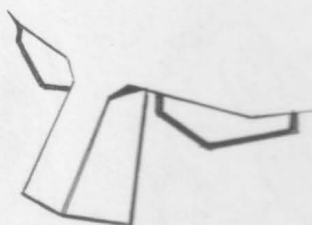
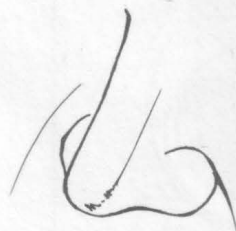
Side view

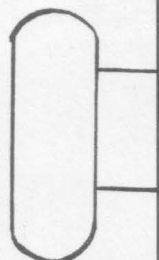
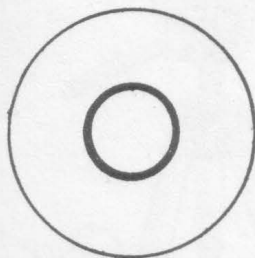
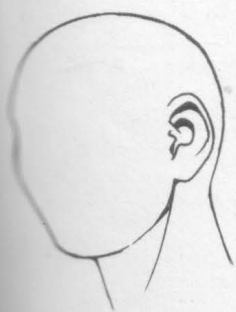


Upward view



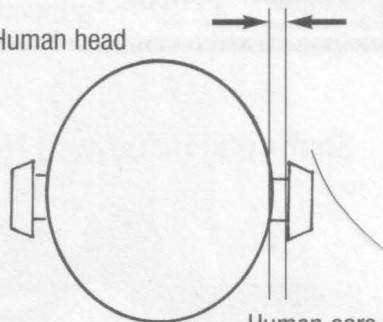
Downward view





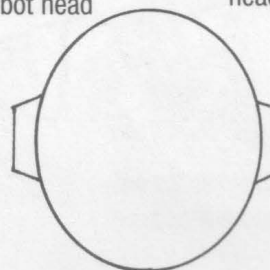
Robot ears are generally rectangular or round. Make them simple.

Human head

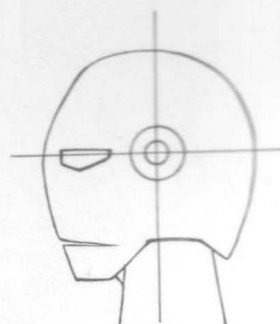


Human ears stick out from the head.

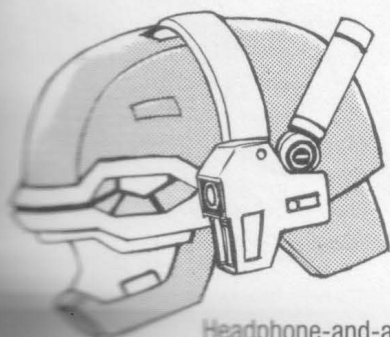
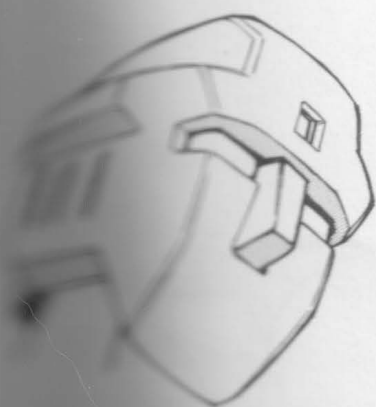
Robot head



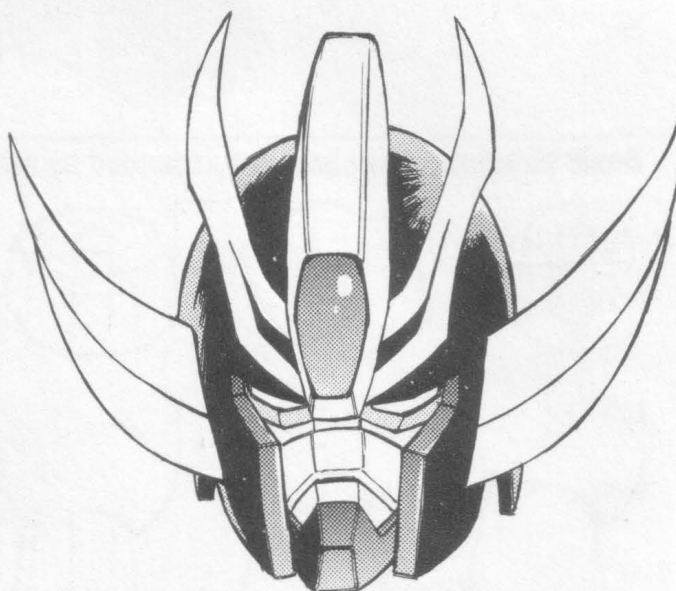
Robot ears are usually molded into the head.



Drawing the ears near the middle of the head will make the robot look human.



Headphone-and-antenna type



Horn-shaped type

Head Neck

Think in terms of how the neck supports the head.

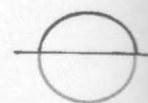
Three basic neck types



Thick neck

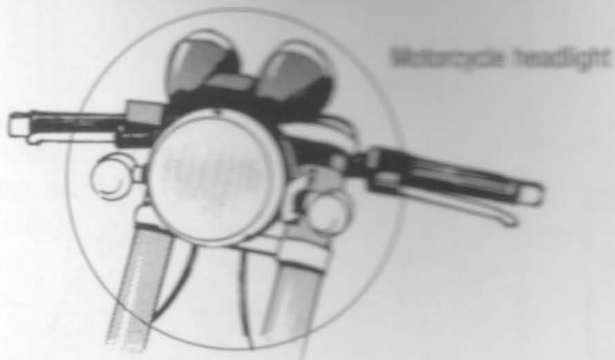


Thin neck

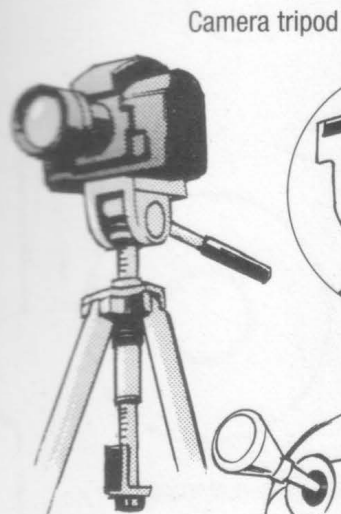


No neck
(lodged in the body)

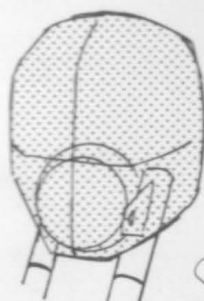
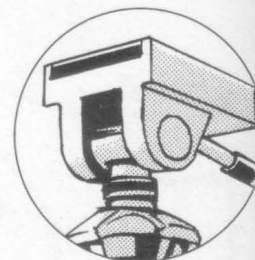
Shaft- and Hinge-type Necks



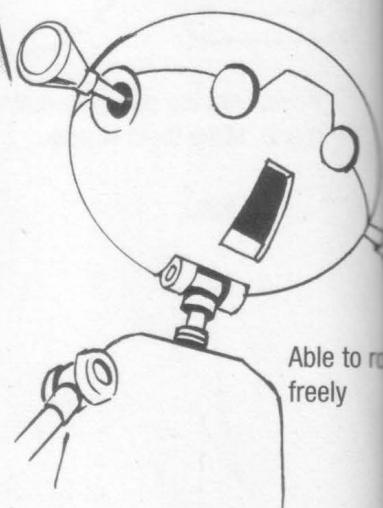
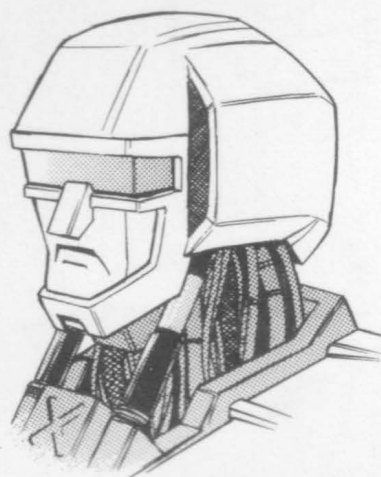
Motorcycle headlight



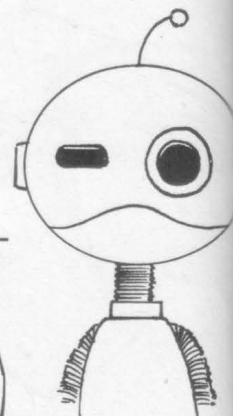
Camera tripod



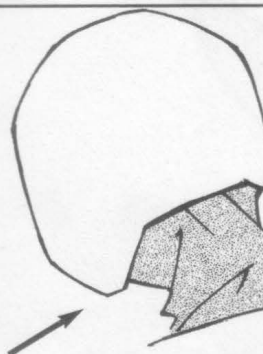
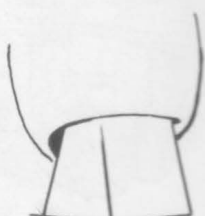
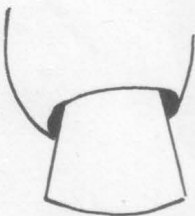
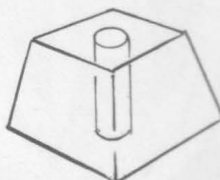
Replace headlight
with head



Able to rotate
freely



Basic structure: The shaft is surrounded by armor.

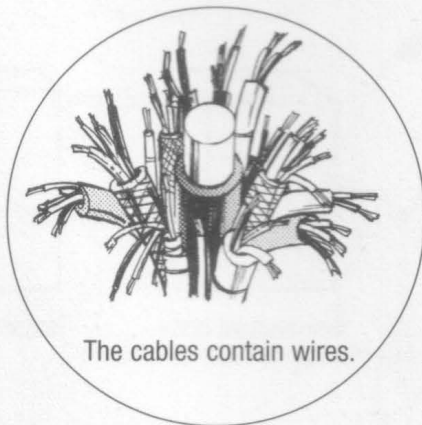
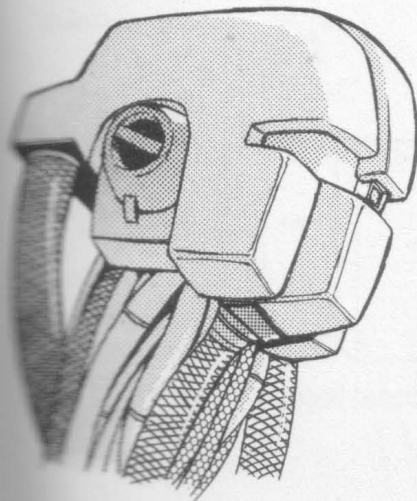


Protective cover used
instead of armor

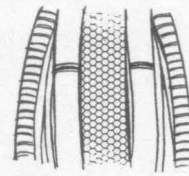
Spring- or
accordion-type
cover



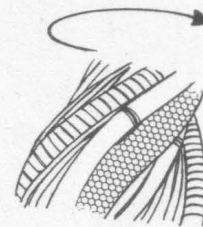
Cable- and Hose-type Necks



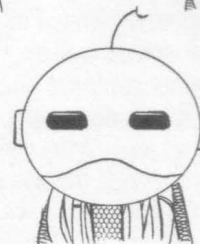
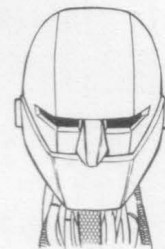
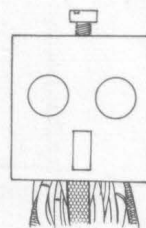
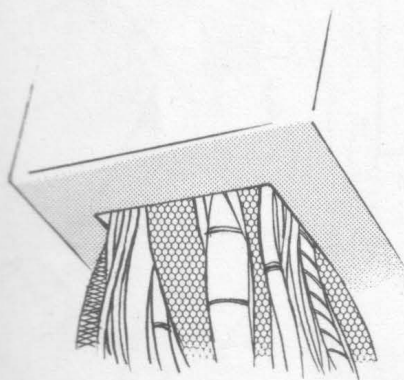
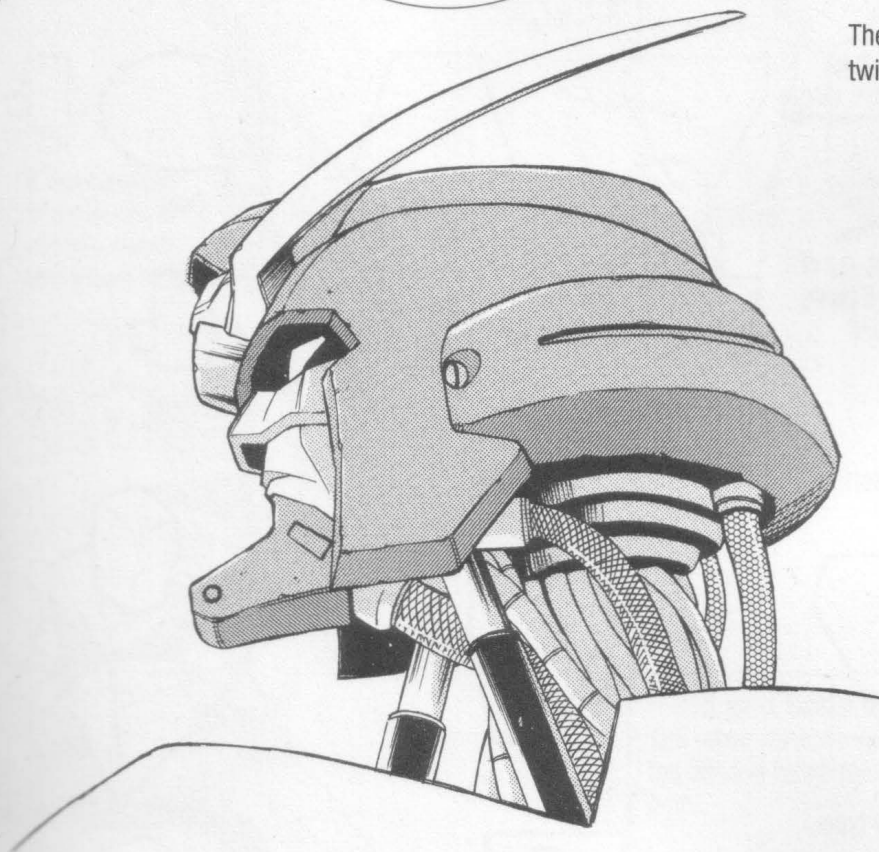
The cables contain wires.



Representing twisting



The cables and hoses twist as the head turns.



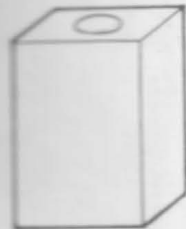
It looks like the robot is in for maintenance if you draw cables and hoses instead of a neck.

The trunk can be a single part combining the chest, stomach and hips, or two or more separate parts.

Single-part type Three basic shapes



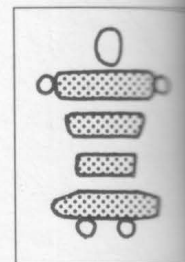
Cylindrical body



Box-shaped body



Board-shaped body



The special "centipede-type" body consists of multiple parts.

Two-part type

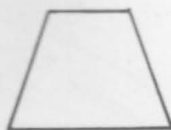


Chest part
Four basic shapes

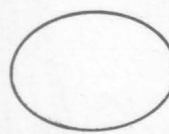
Hips part
Three basic shapes



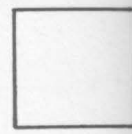
Inverted triangle



Stand



Oval



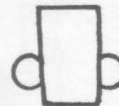
Square



Briefs type



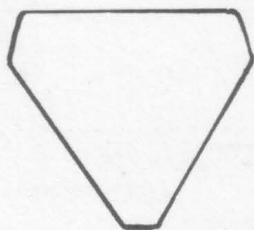
T type



I type

The I type is the skeleton of the briefs type and a simplified version of the T type.

Chest Patterns

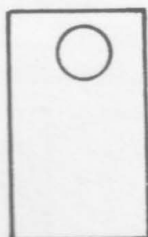
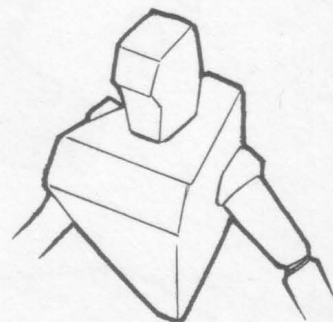


Inverted triangle type

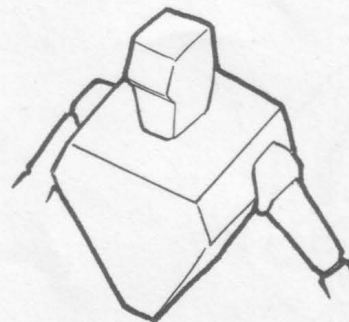
Side view



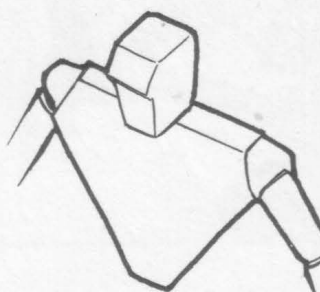
Irregular cone



Normal box



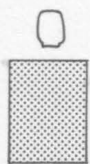
Board



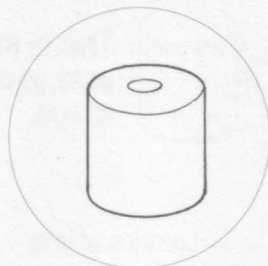
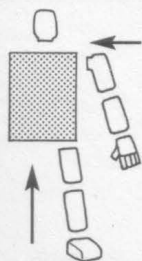
When designing the body of a robot, think about the shape as seen from the side as well as the front. A robot can have a totally different look depending on the thickness even if the design and shape look the same from the front.

The Art of Design

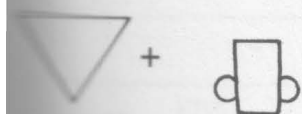
1. Choose body type.



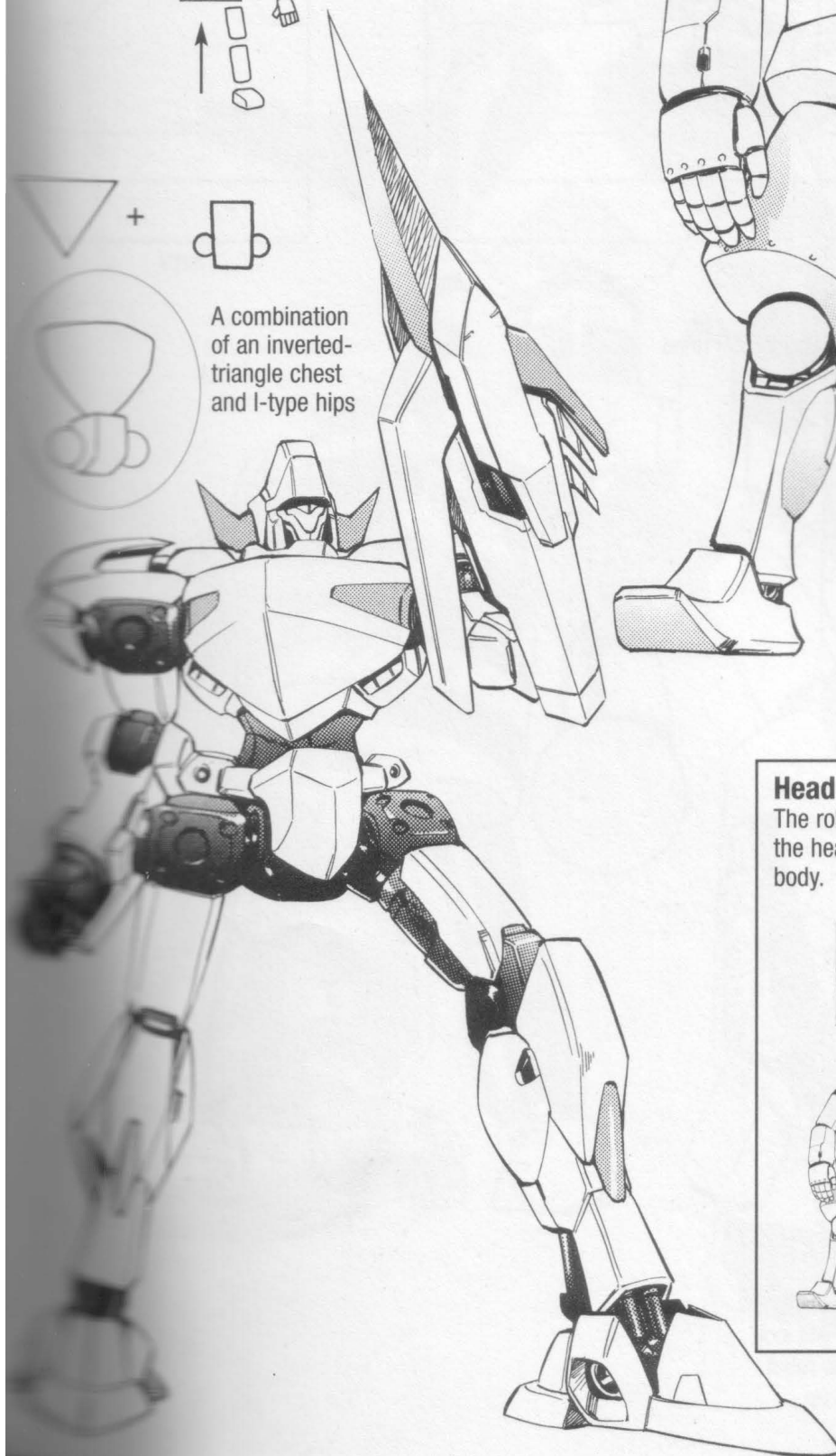
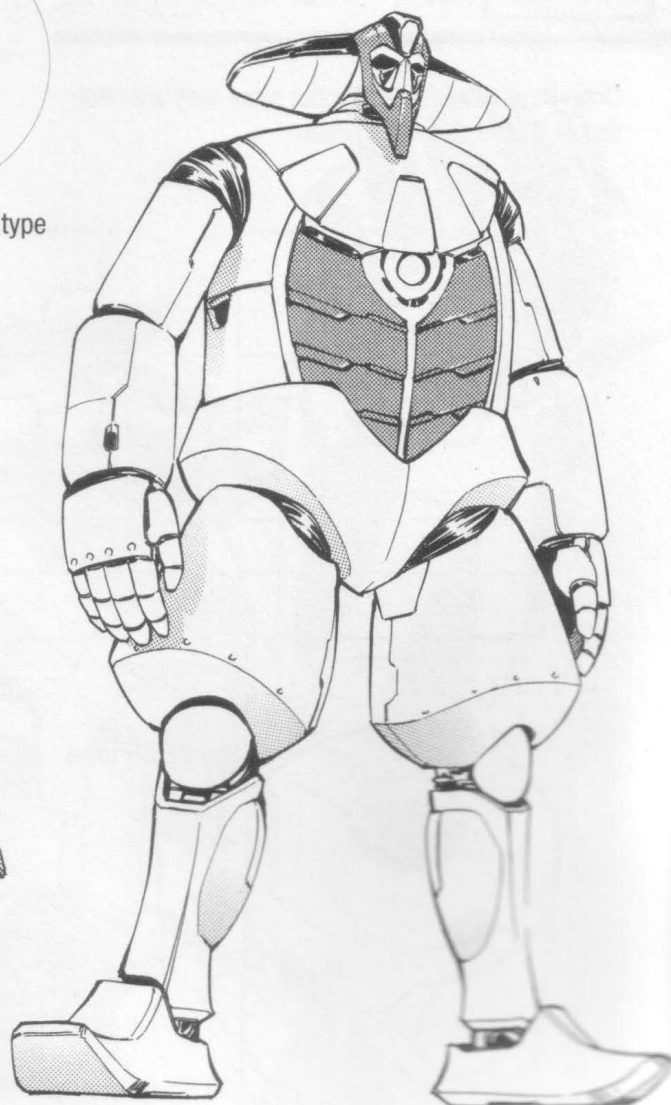
2. Attach arms and legs of your choice.



Cylindrical-body type

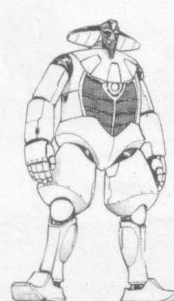
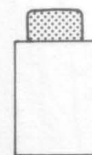
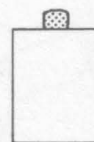


A combination of an inverted-triangle chest and I-type hips

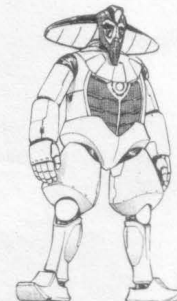


Head and body balance

The robot will look more intimidating if the head is relatively smaller to the body.



Good



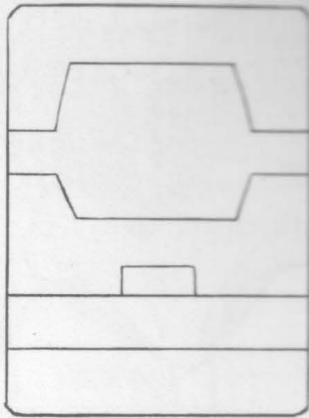
Bad

Trunk Type 1: Cylindrical Body

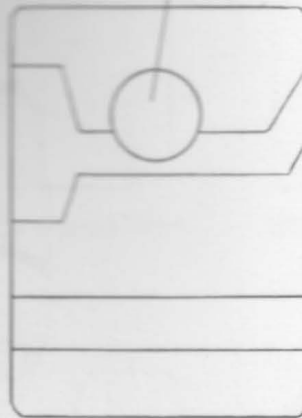


This is the classic "potbellied" robot. It is easy to draw stocky, solid robots using this shape.

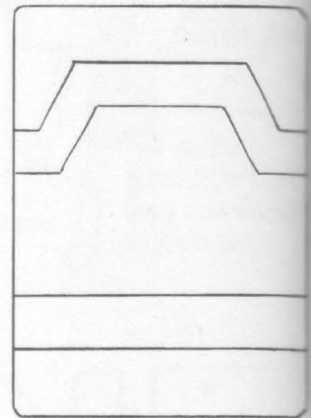
Draw three views of your robot since they are often drawn from a variety of angles.



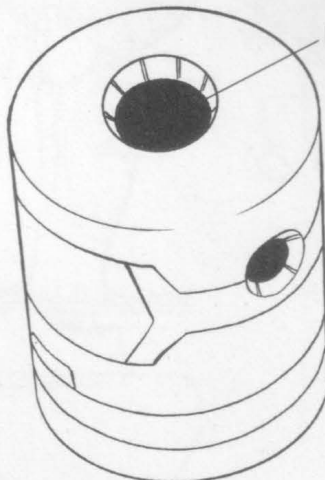
Front



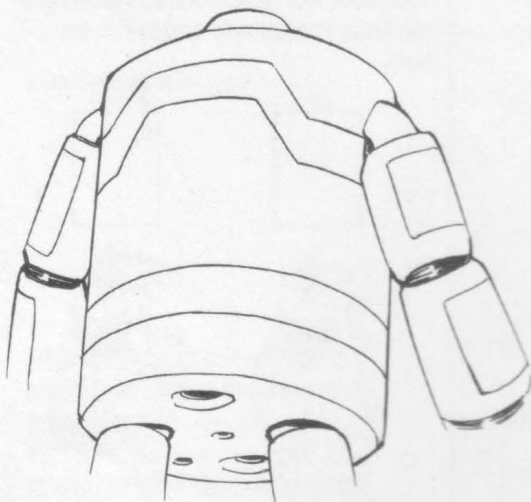
Side



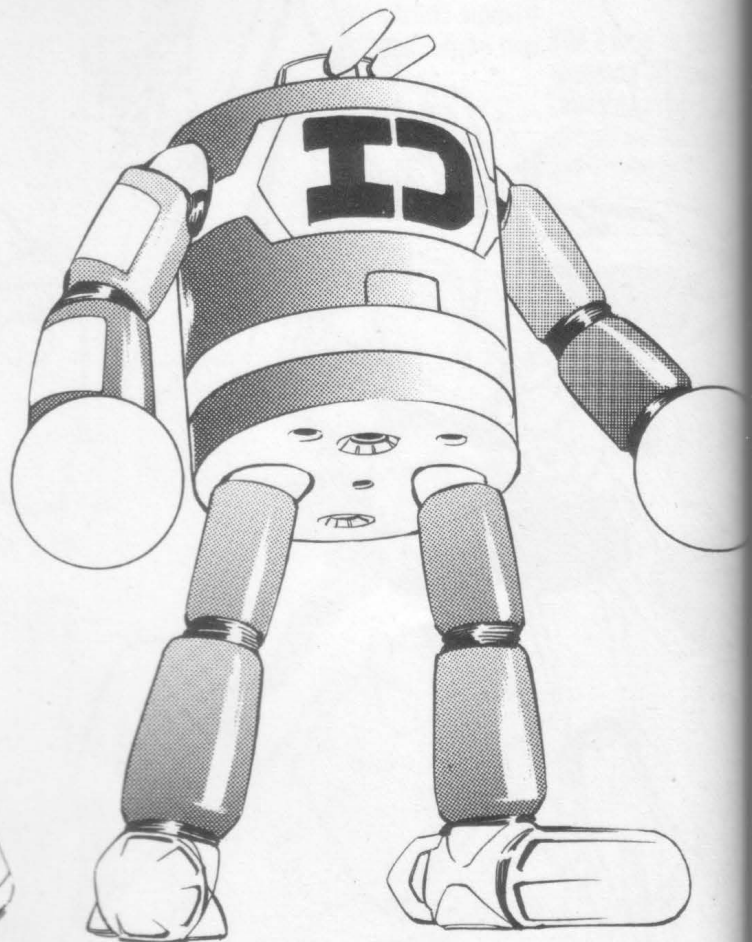
Back

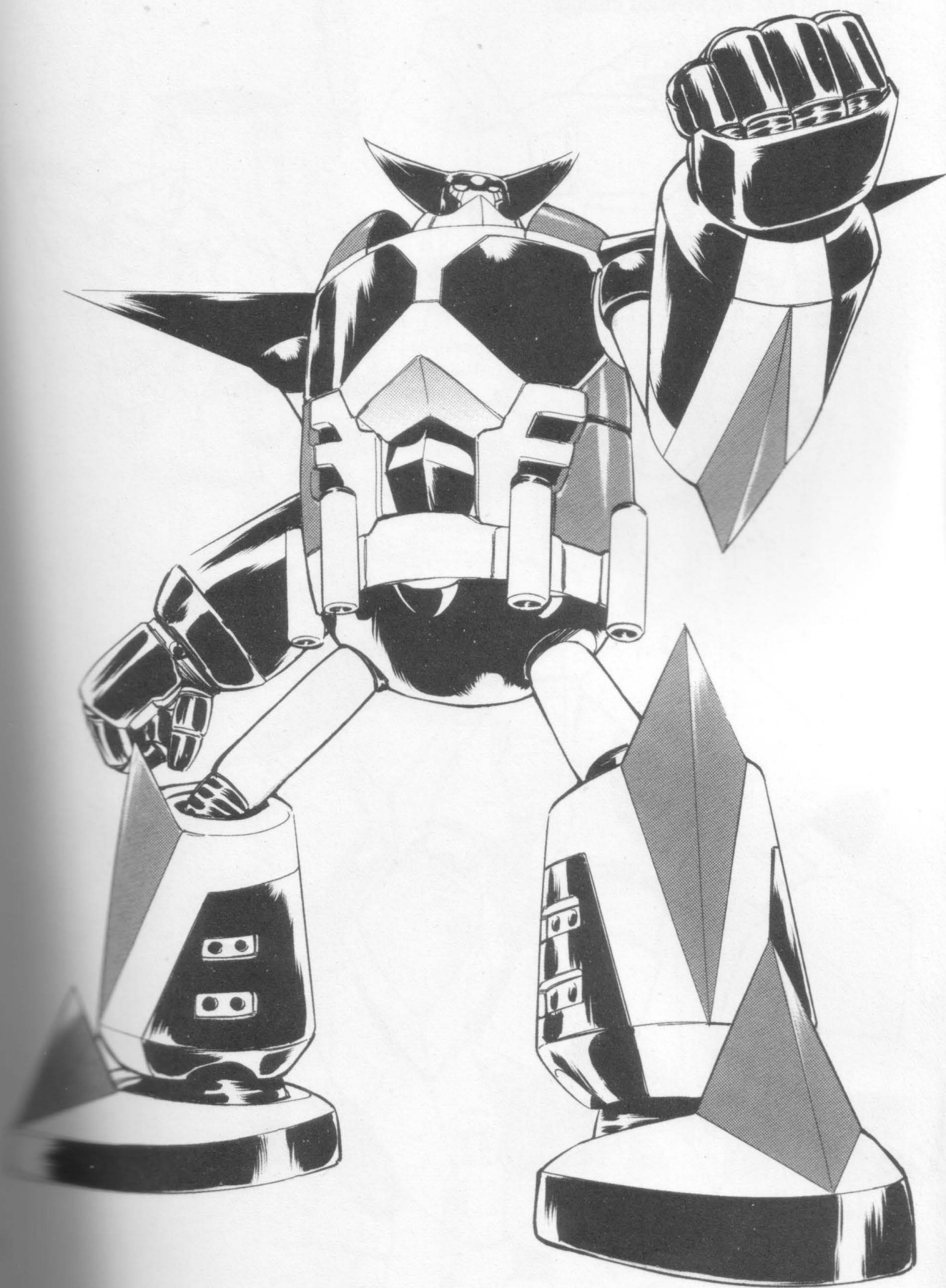


As seen from above



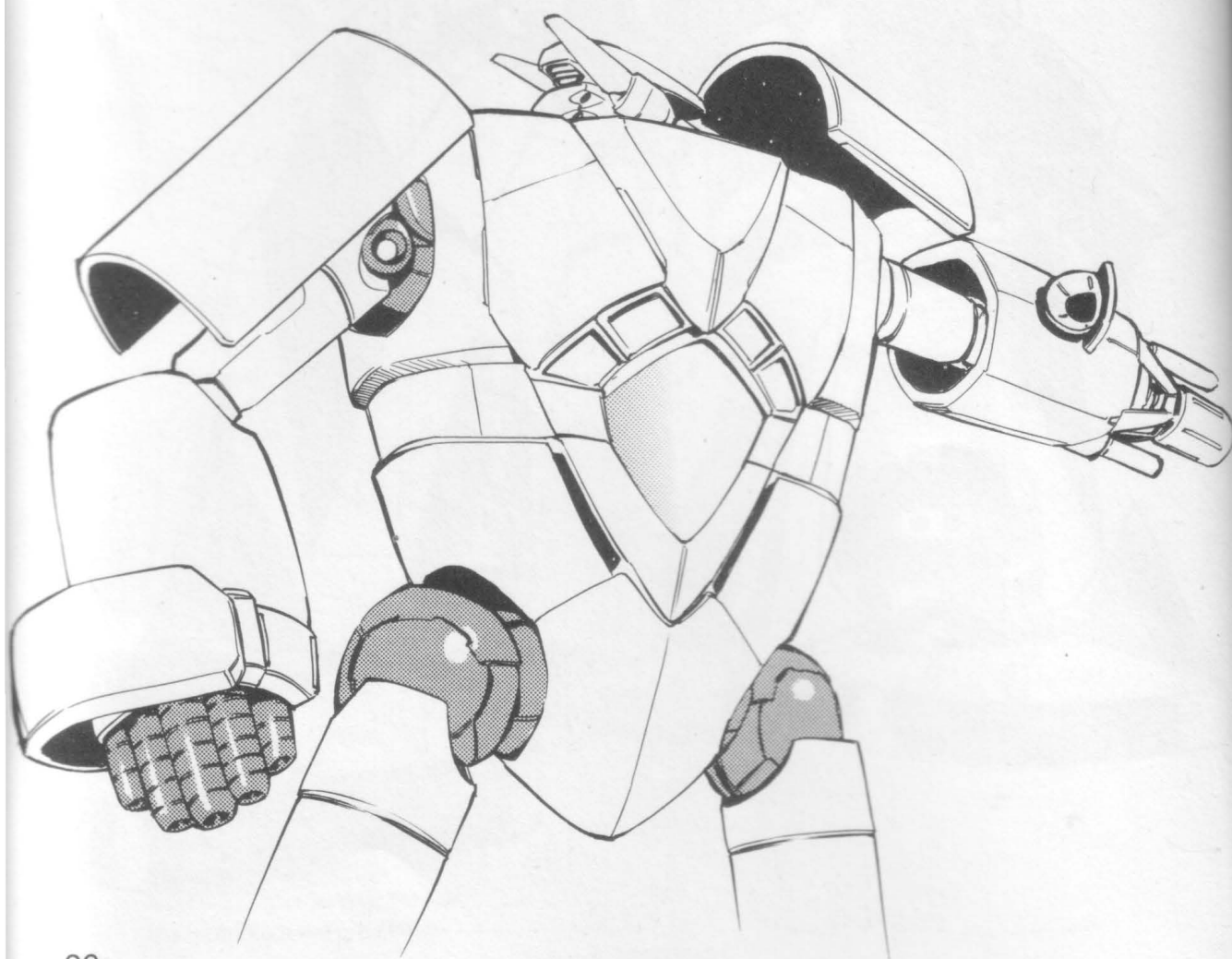
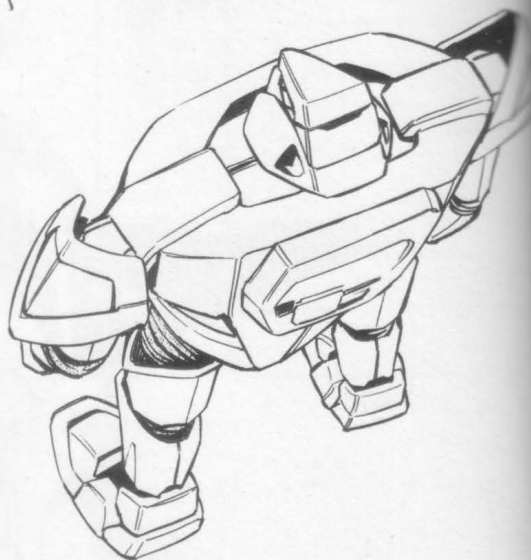
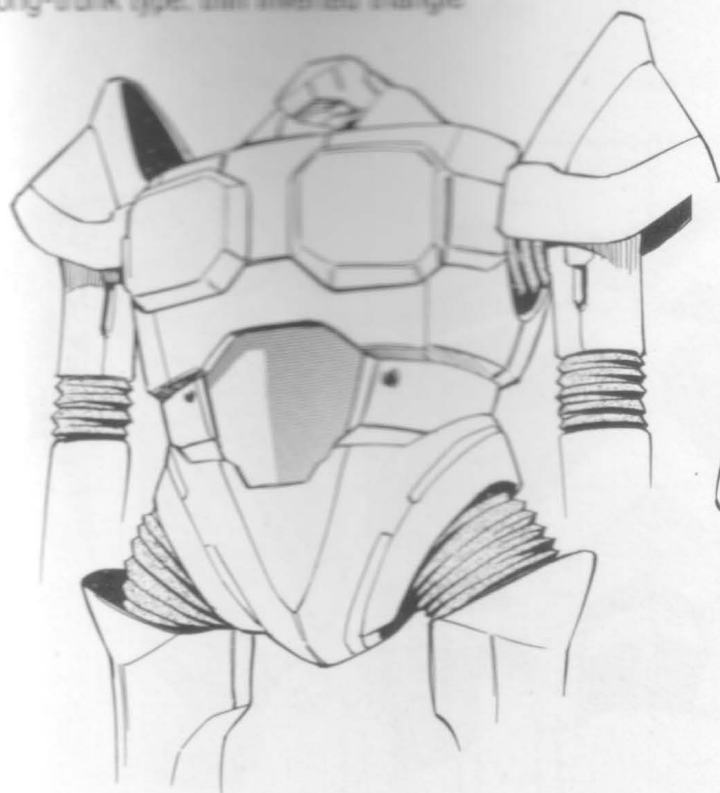
Carefully choose the locations of the arms and legs so they will look natural yet strong when the robot is viewed from the ground up.



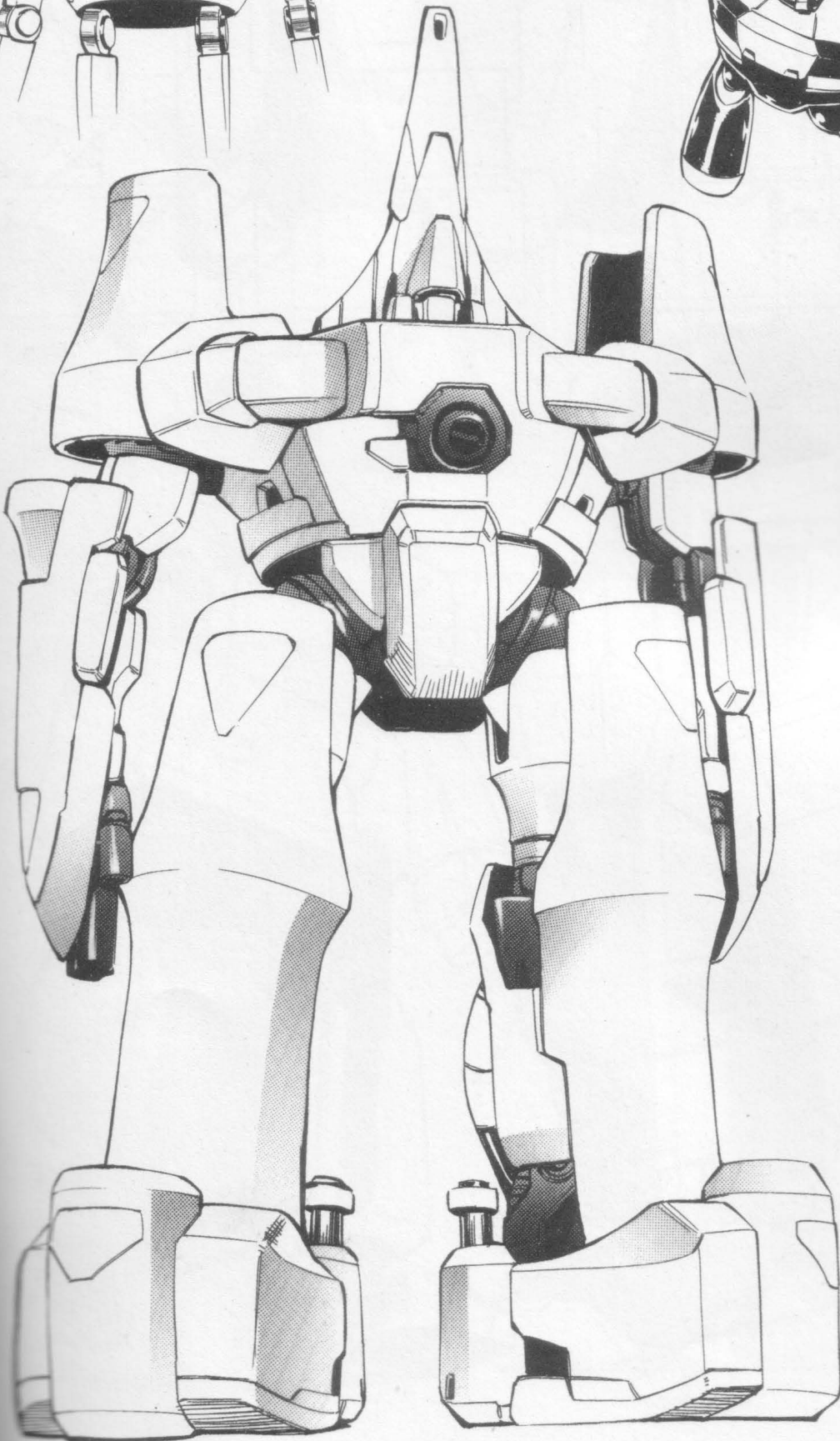
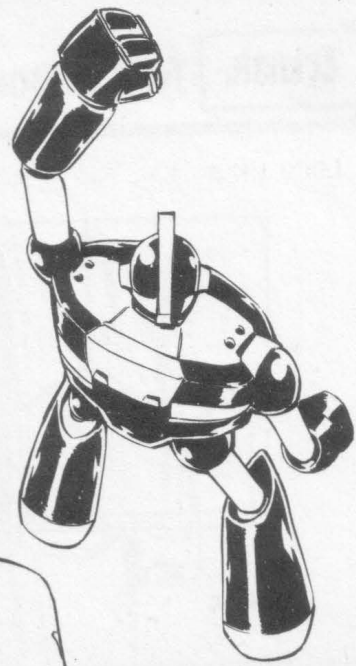
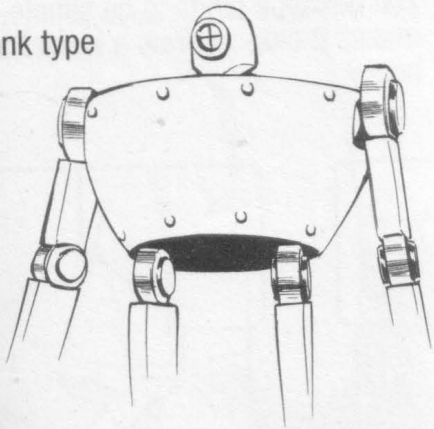


Cylindrical Body Variations: Robots with short or thin trunks look more intimidating than those with stocky ones.

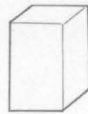
Long-trunk type: thin inverted triangle



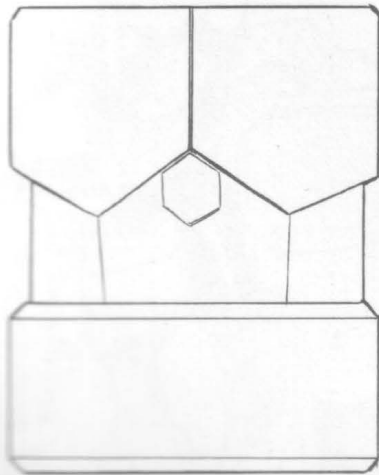
ort-trunk type



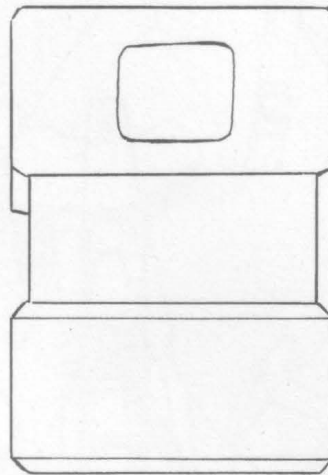
Trunk Type 2: Box-shaped Body



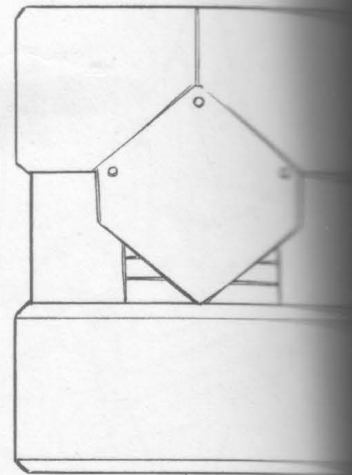
The box type tends to be simple, which makes it easy to draw a robot that looks heavy.



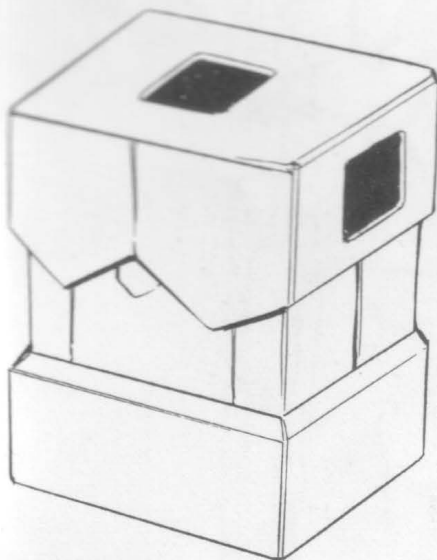
Front



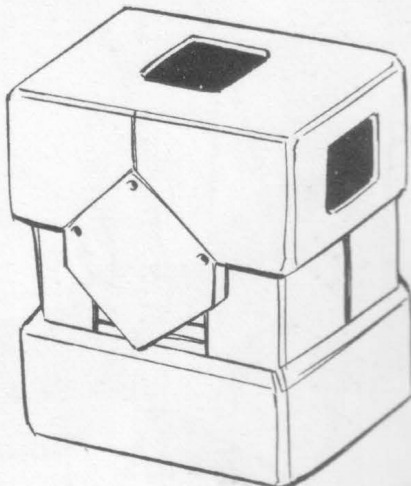
Side



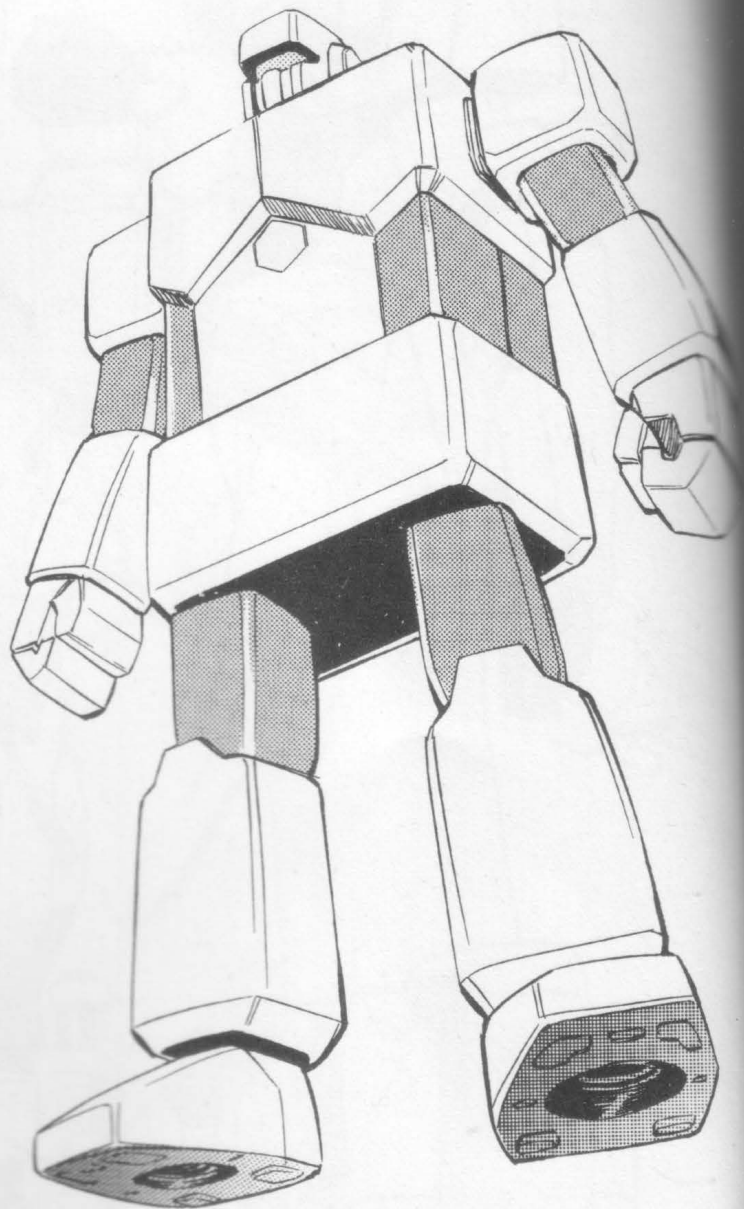
Back

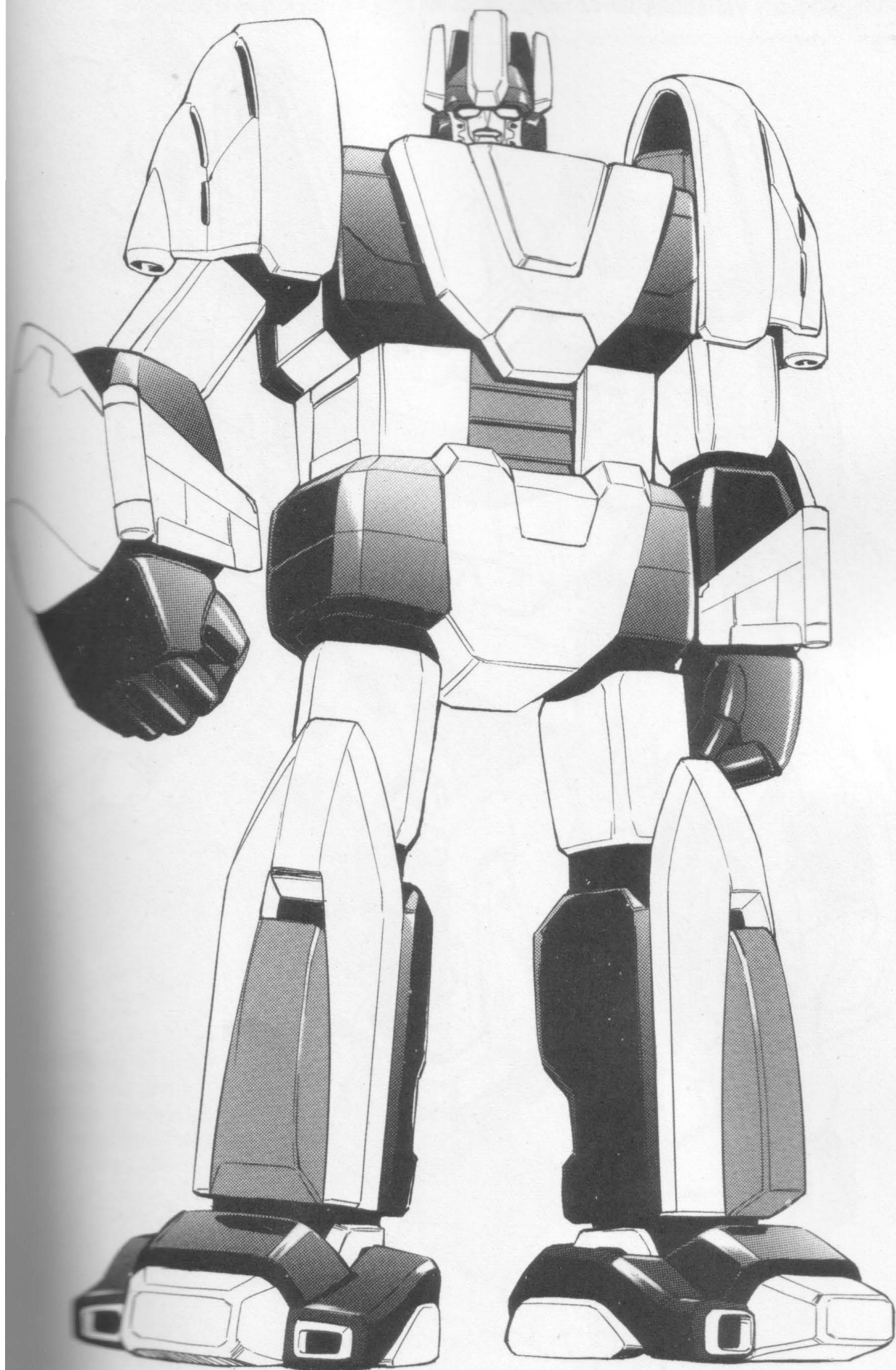


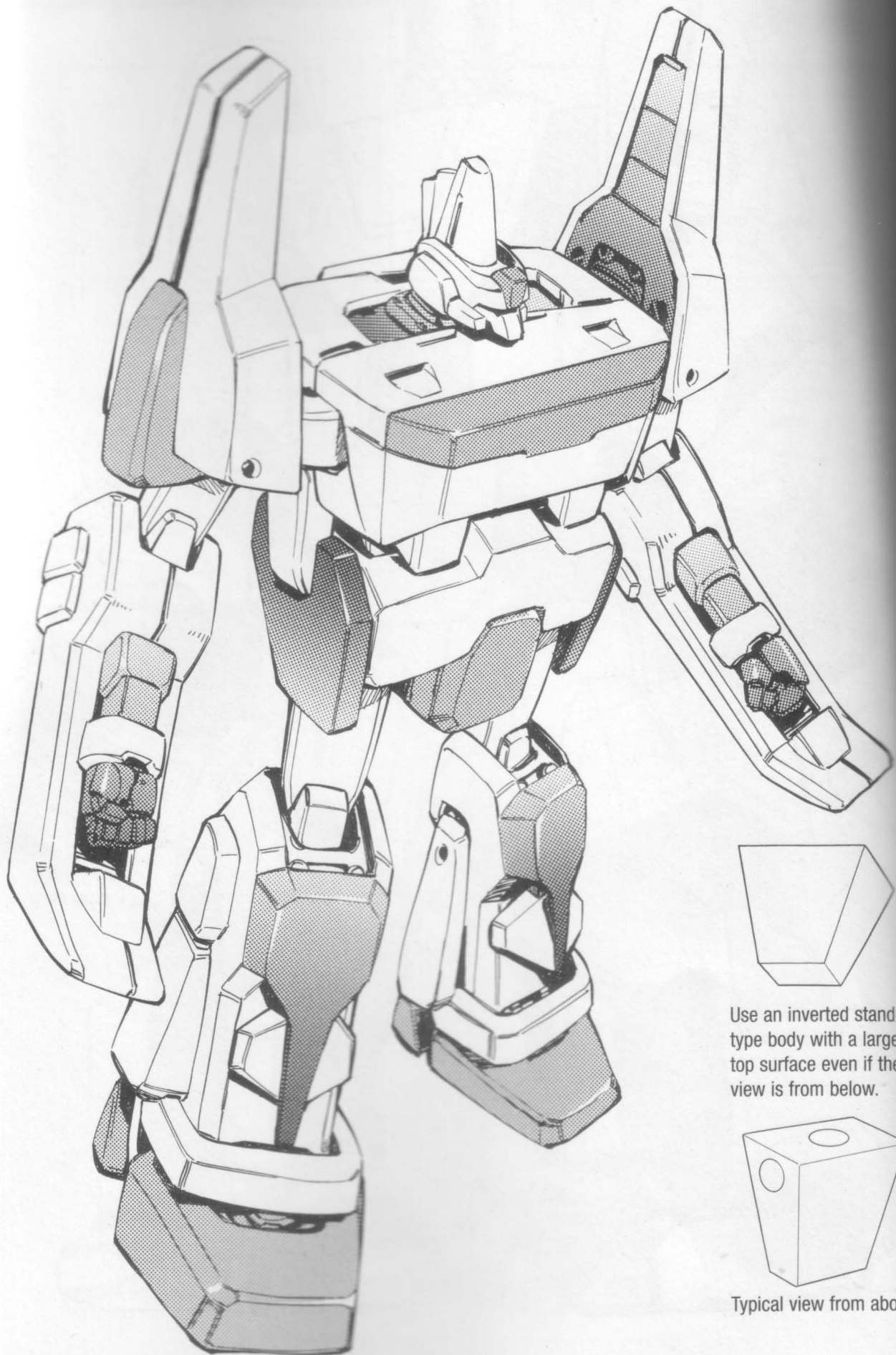
Looking down
from front



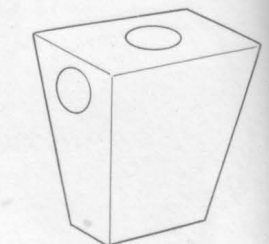
Looking down
from behind



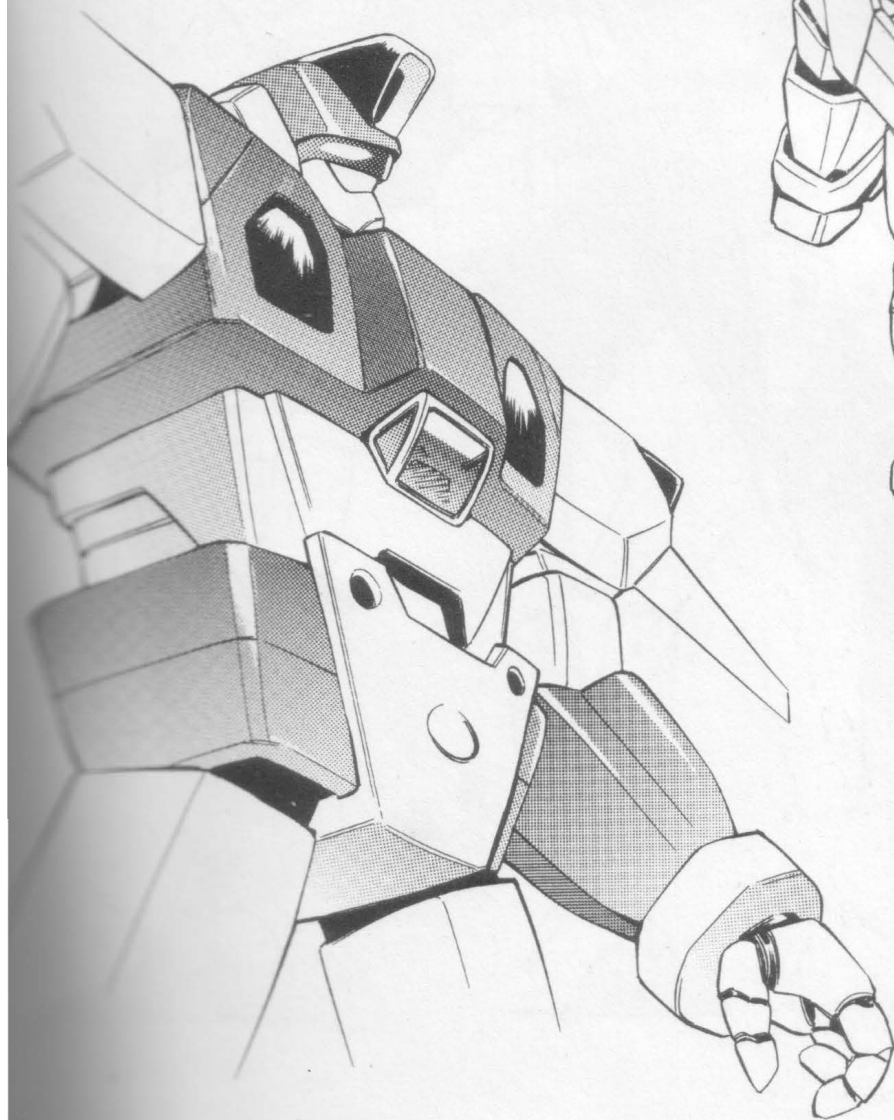
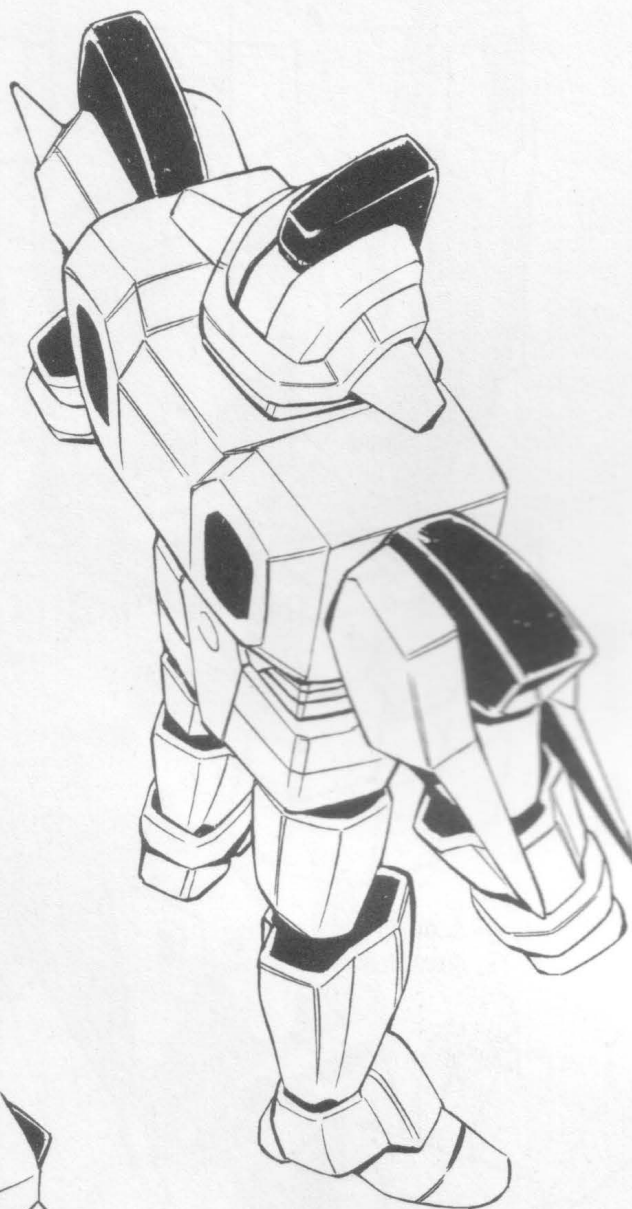
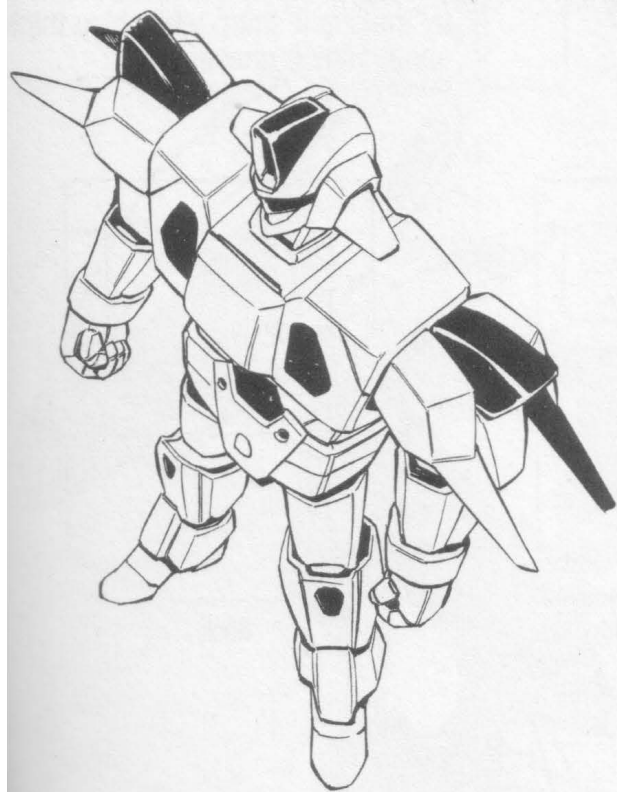




Use an inverted stand-type body with a large top surface even if the view is from below.



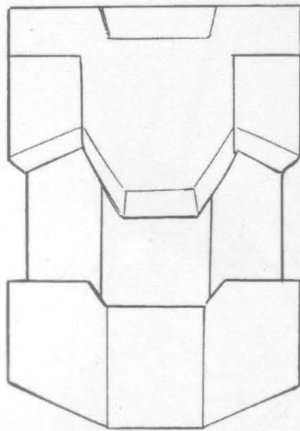
Typical view from above



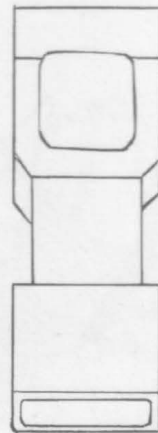
Trunk Type 3: Board-shaped Body



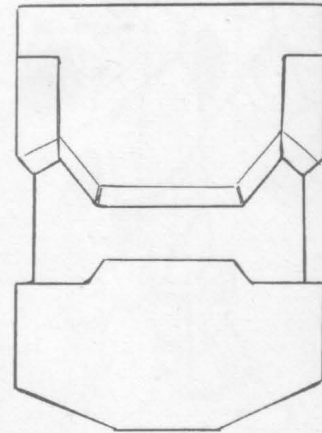
Attempt to make the most of this thing by making it sharp while also thinking about adding unevenness.



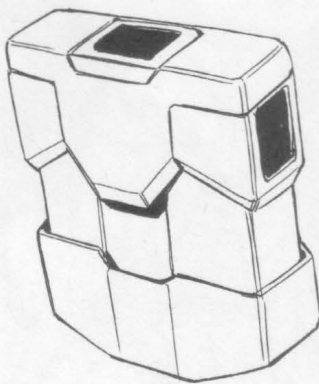
Front



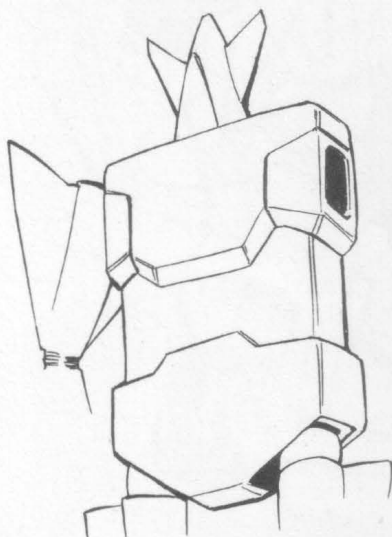
Side



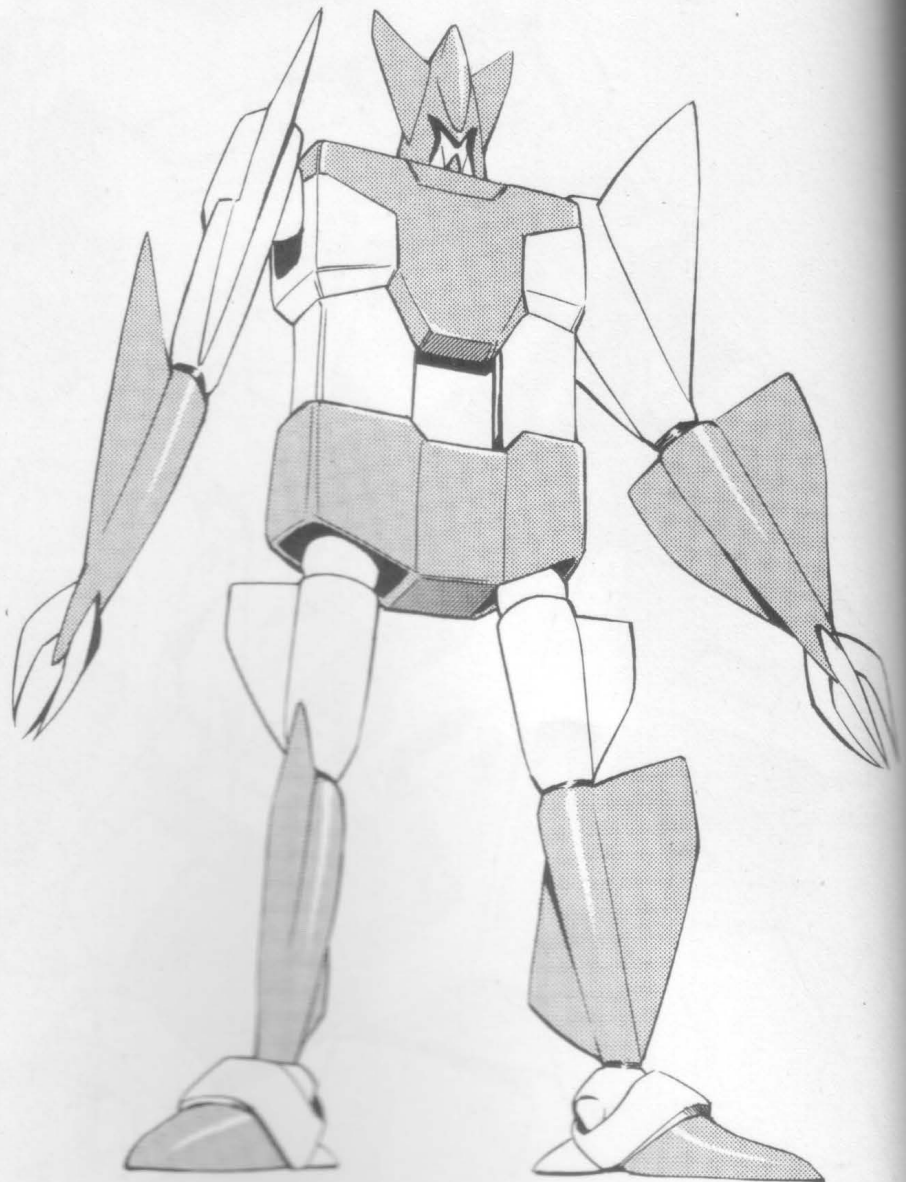
Back

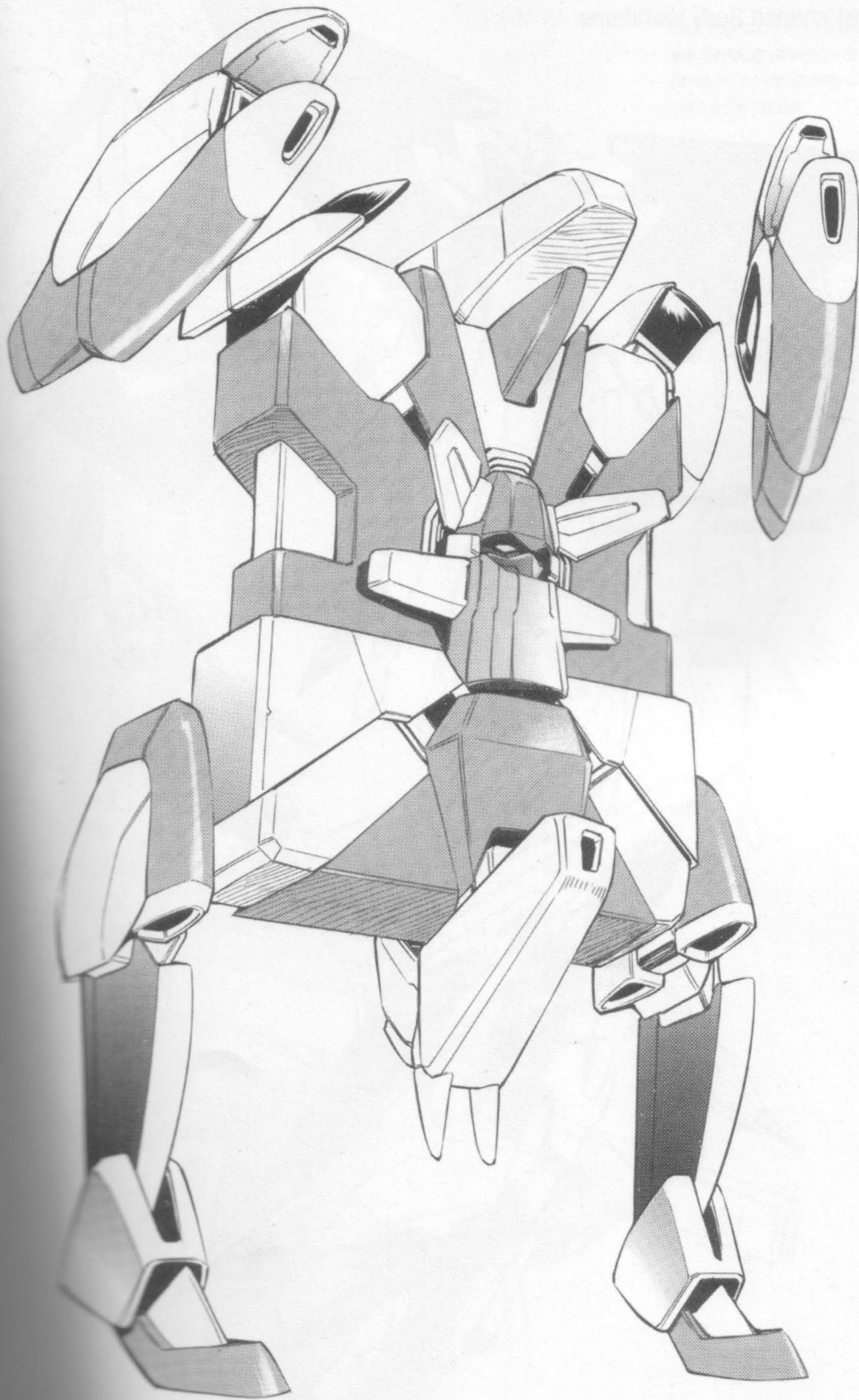


Looking down from front

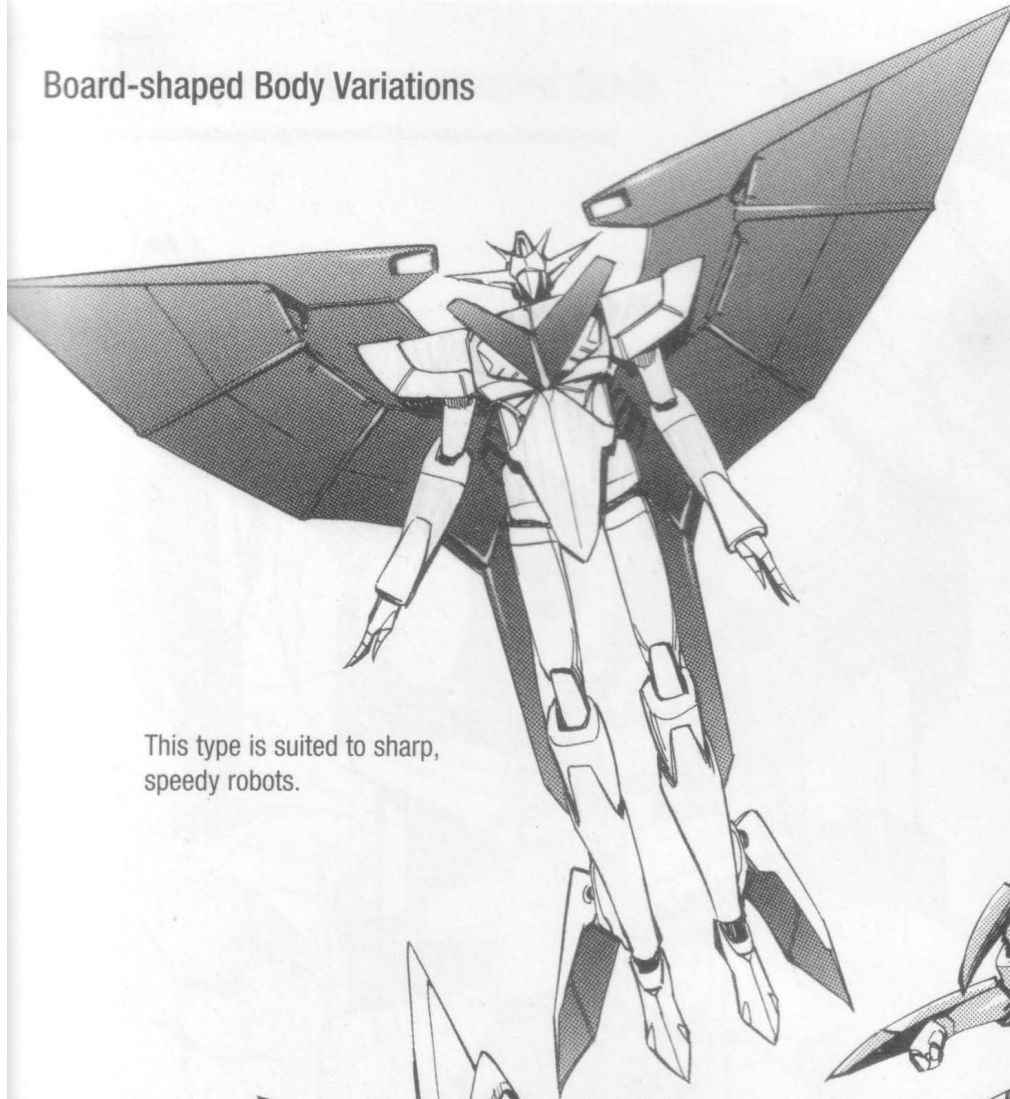


Looking up from behind

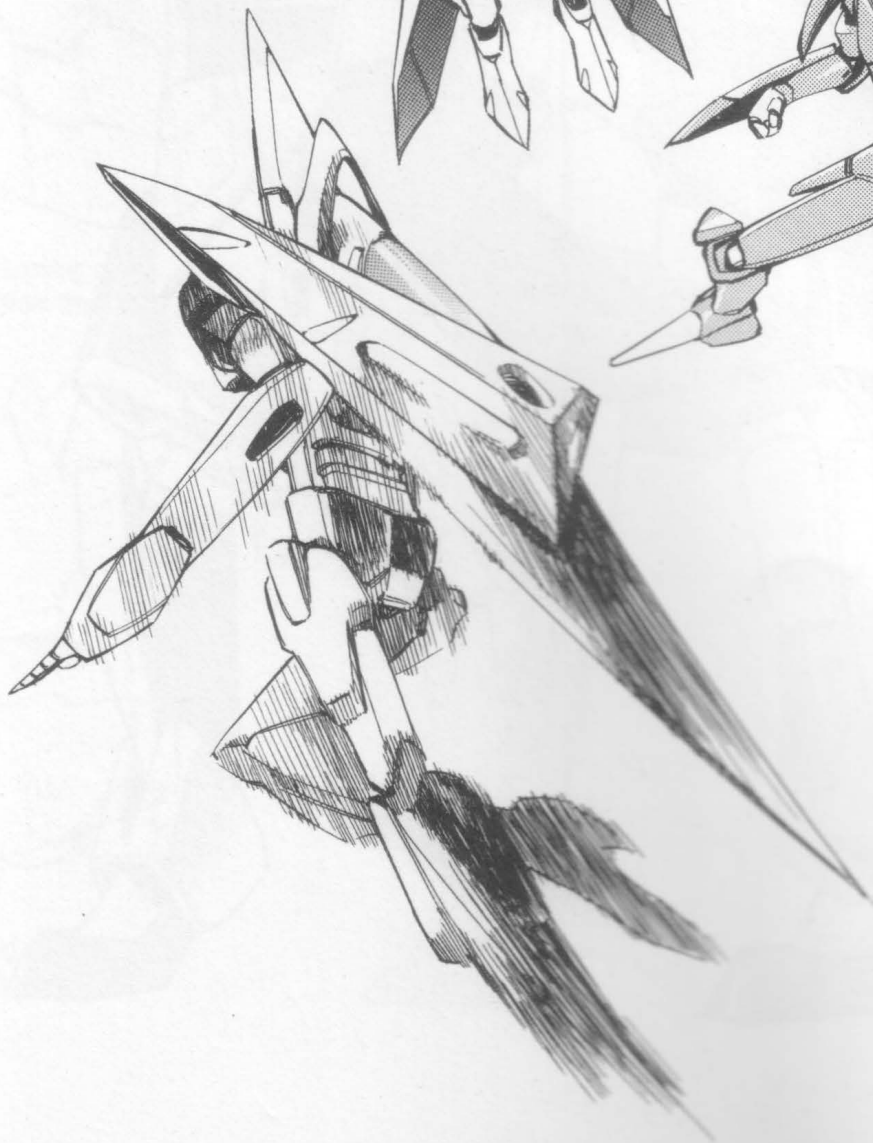
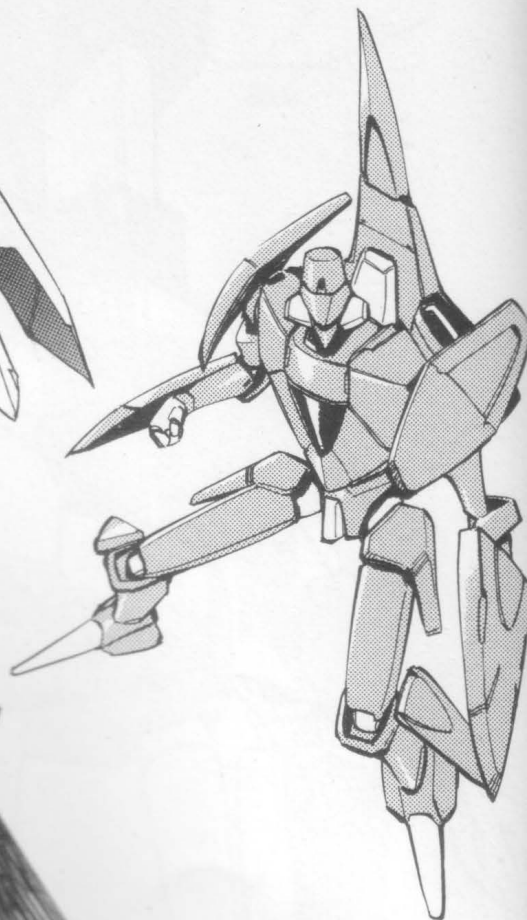




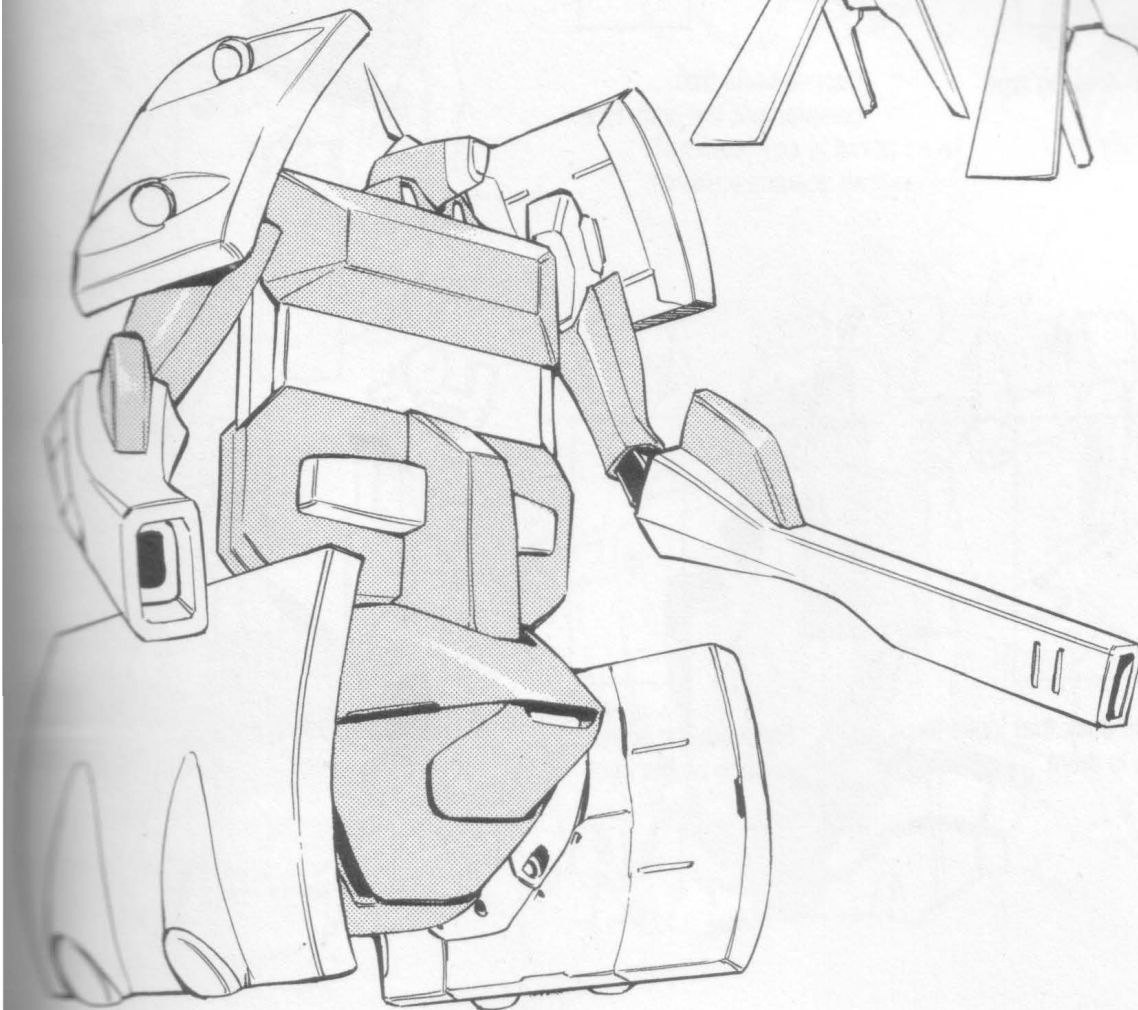
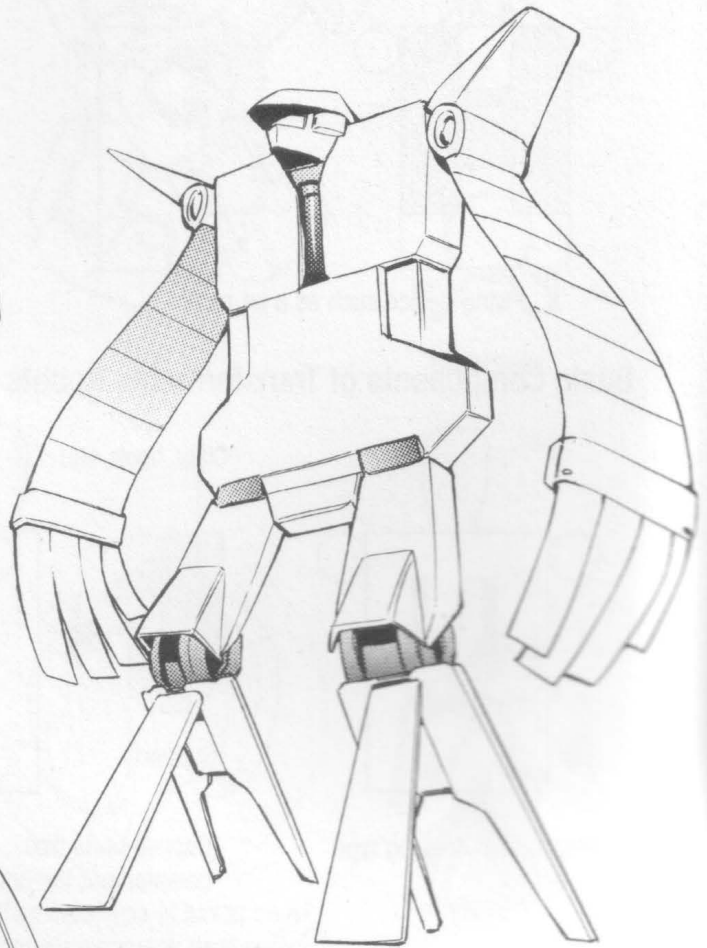
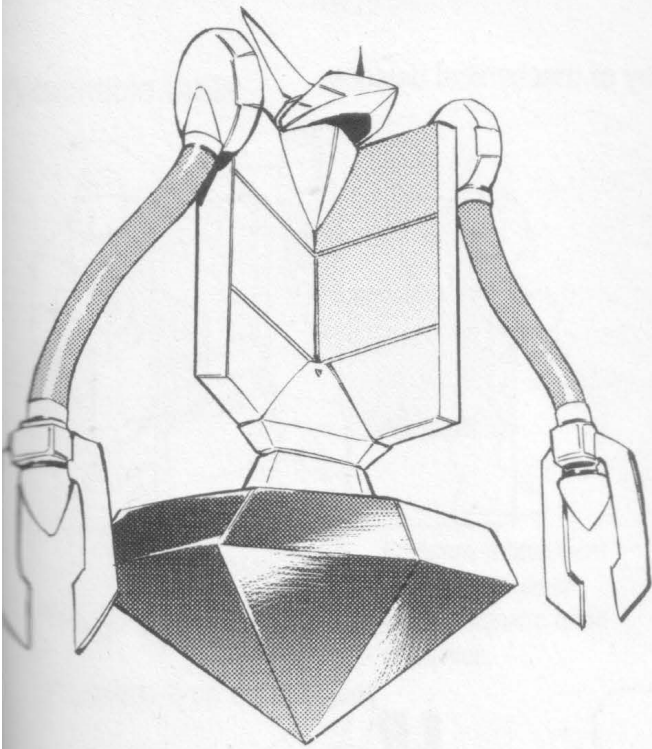
Board-shaped Body Variations

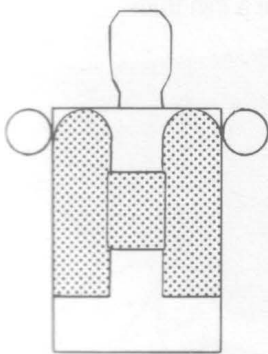


This type is suited to sharp, speedy robots.

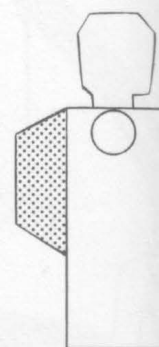
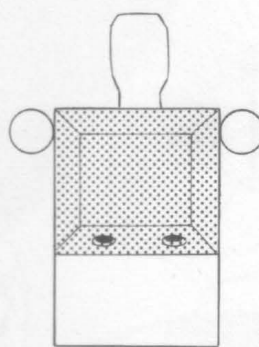
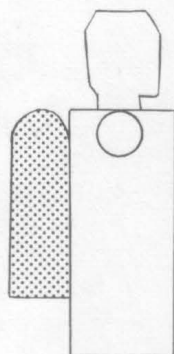


One approach is to imagine the flapping of wings or arms when designing a robot with a thin trunk.



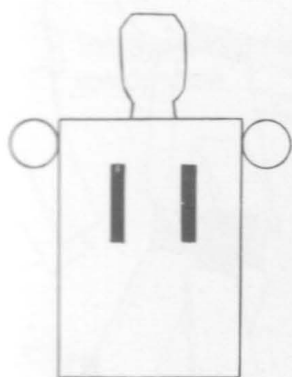


Flying device such as a jet pack



Weapons, fuel tanks, etc.

Basic Components of Transformable Robots



Mechanical docking type

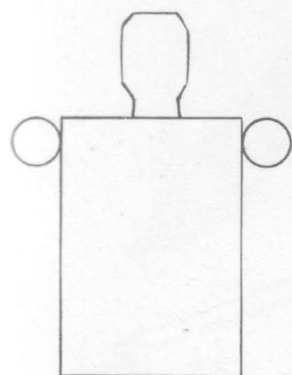
Claw, hook, etc.



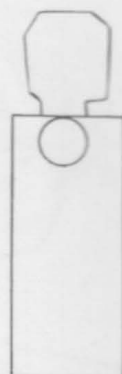
Support



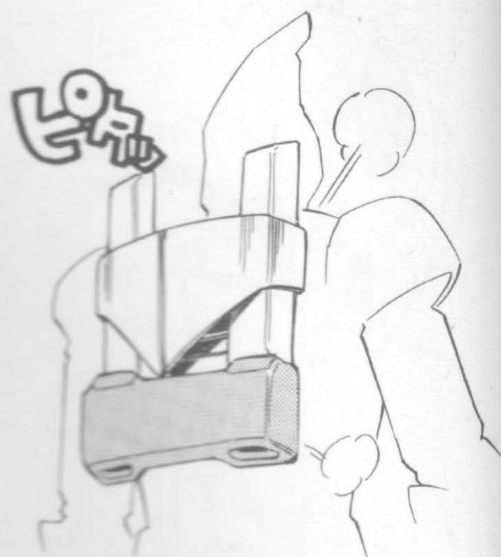
Choose parts that complement the body type.



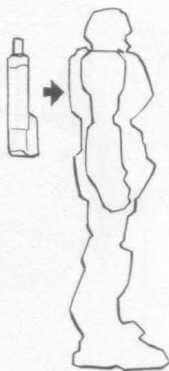
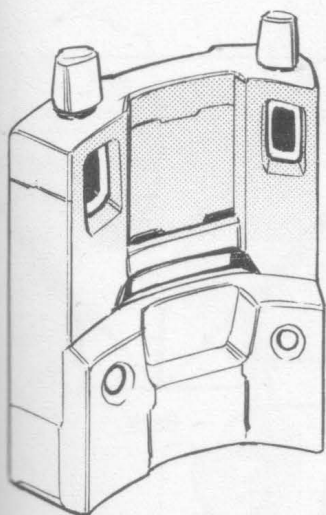
A simple back that looks like nothing is there



Part with the same surface as the back

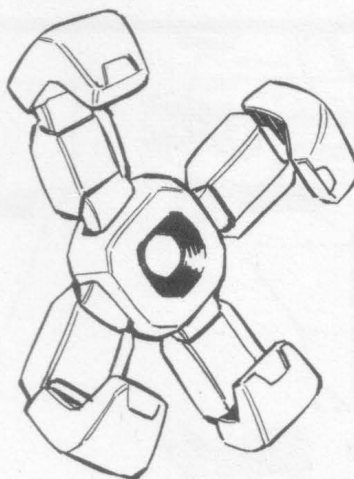


Attachable Units



Pressure-attachment units stay in place using magnetic force or suction.

Pressure-type attachment



Claw type

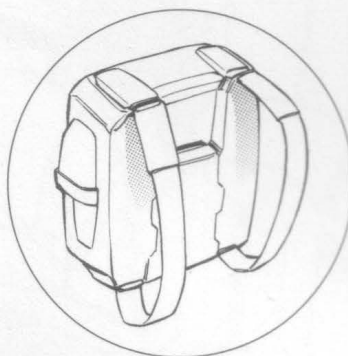
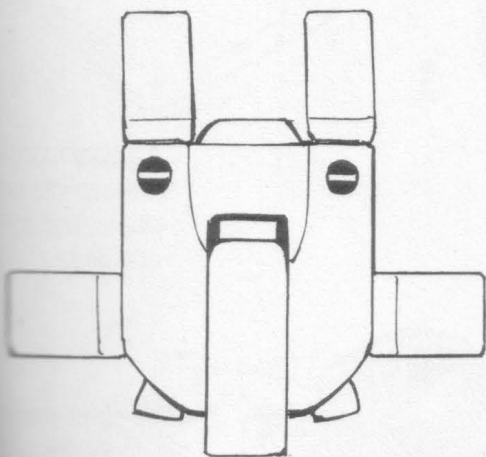


Back

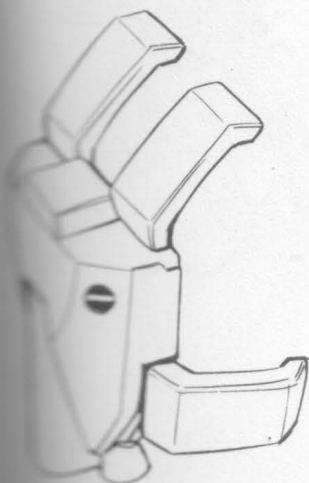


Underbelly

Example of claw-type attachment

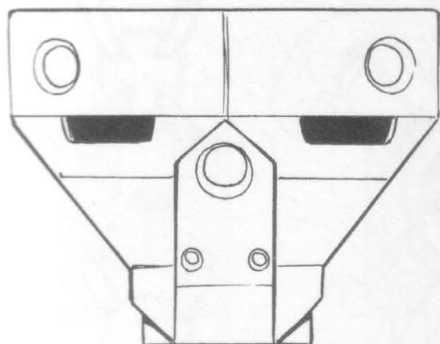


The claw type is based on a simple backpack design.

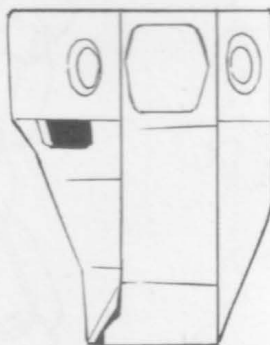


Chest

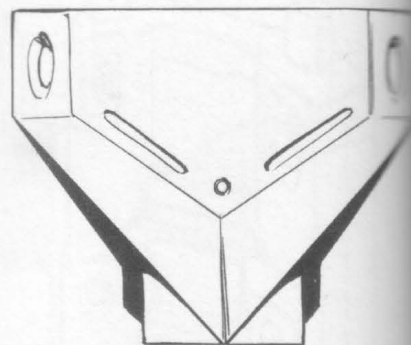
Part 1: Inverted-triangle Type



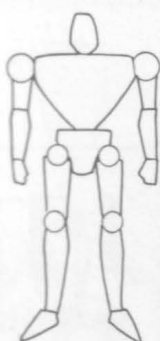
Front



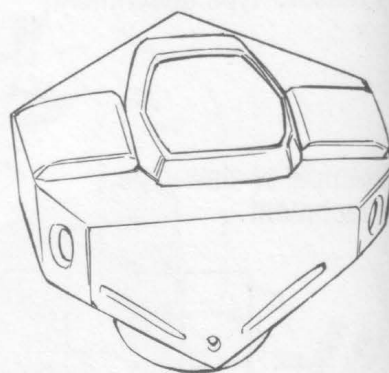
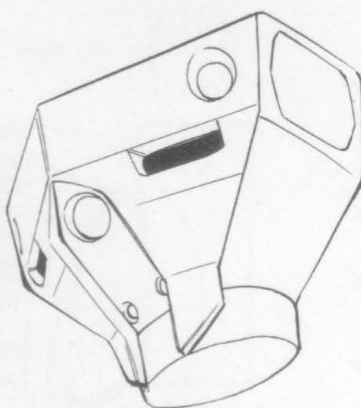
Side



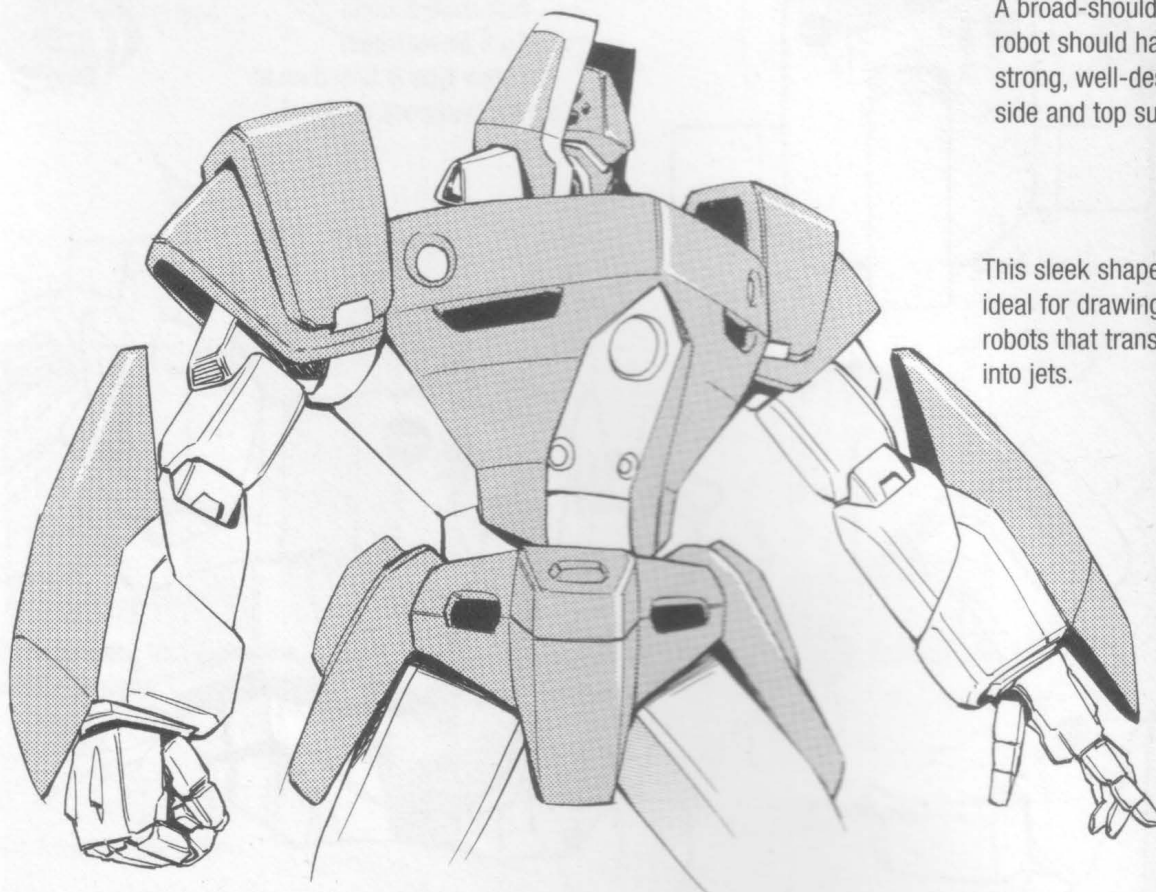
Back



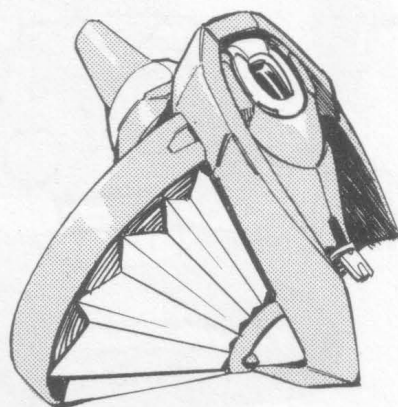
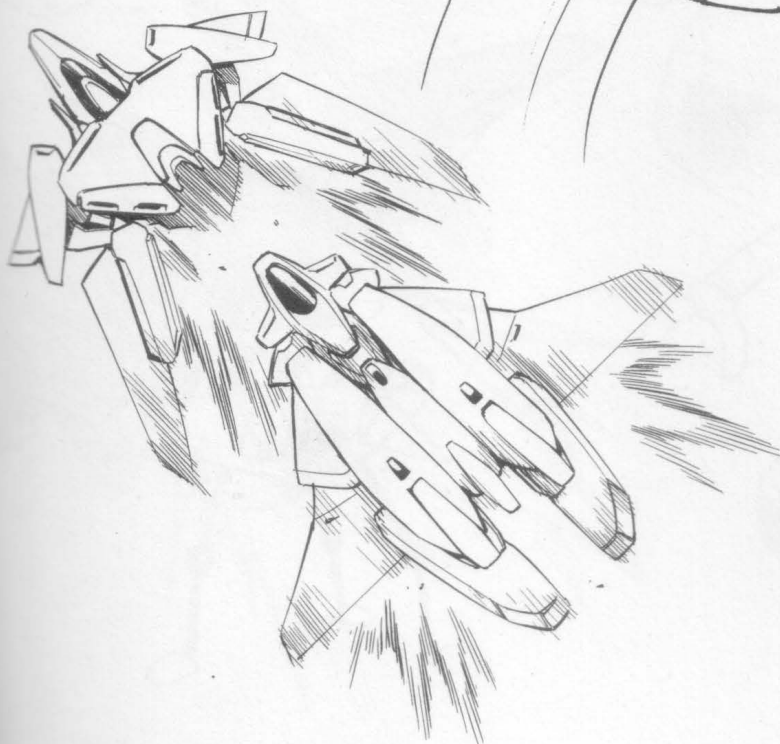
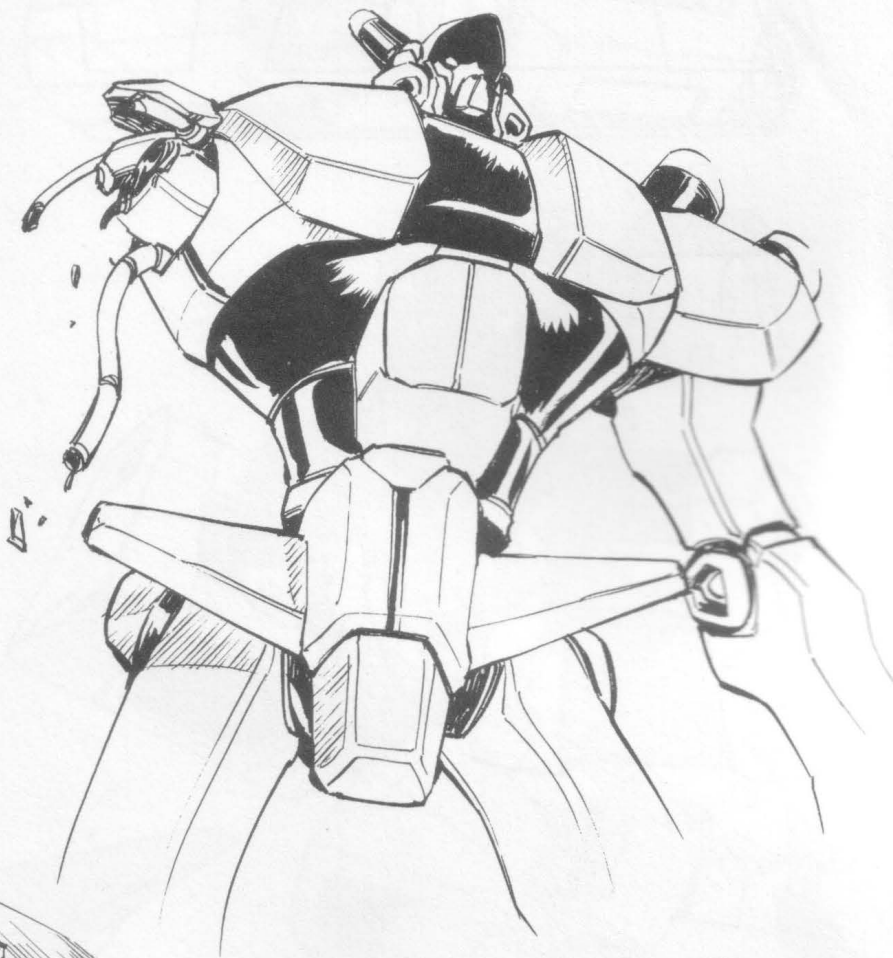
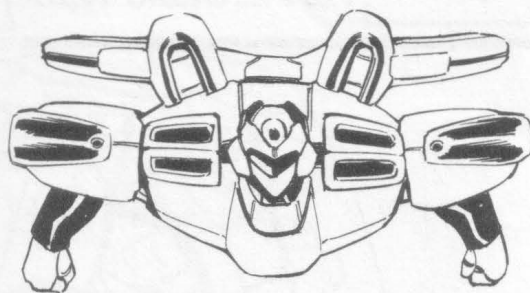
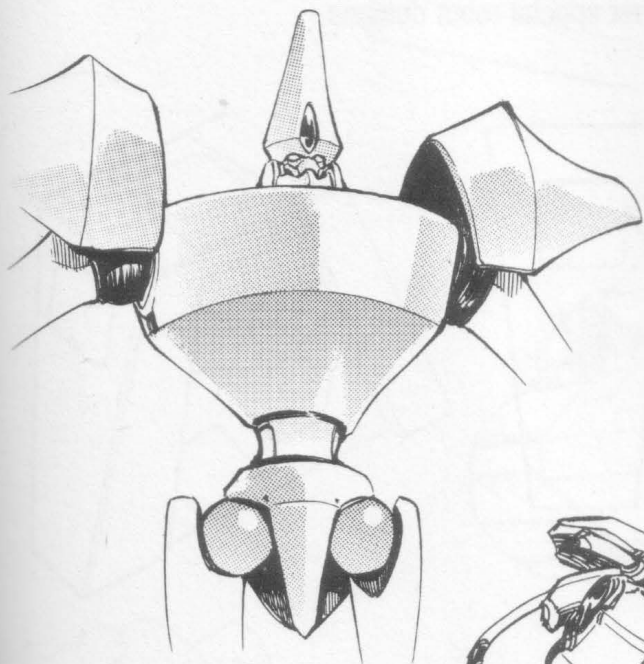
Male form



A broad-shouldered robot should have strong, well-designed side and top surfaces.



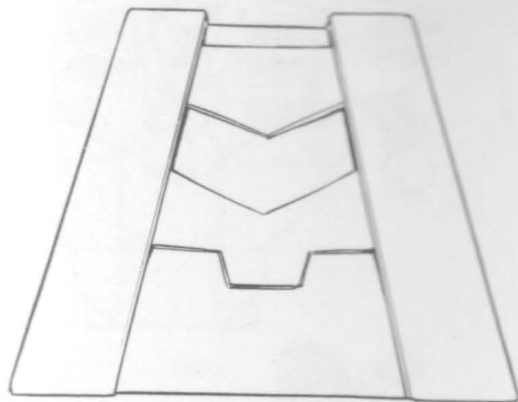
This sleek shape is ideal for drawing robots that transform into jets.



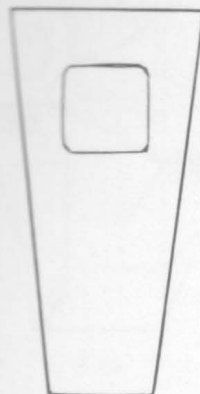
Close-up view of the back of a transformable robot.



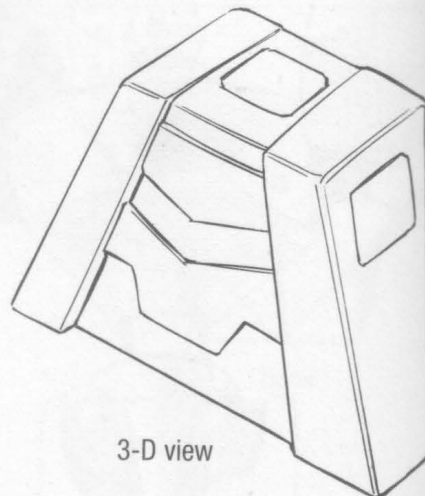
This shape is suited to tank-type robots and other special robot designs.



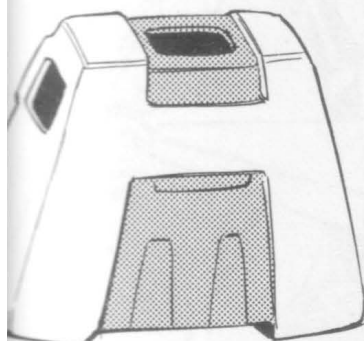
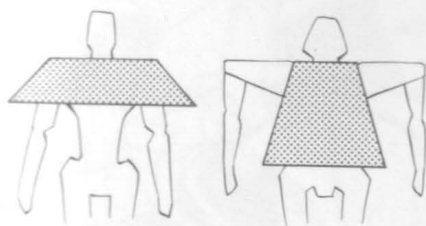
Front



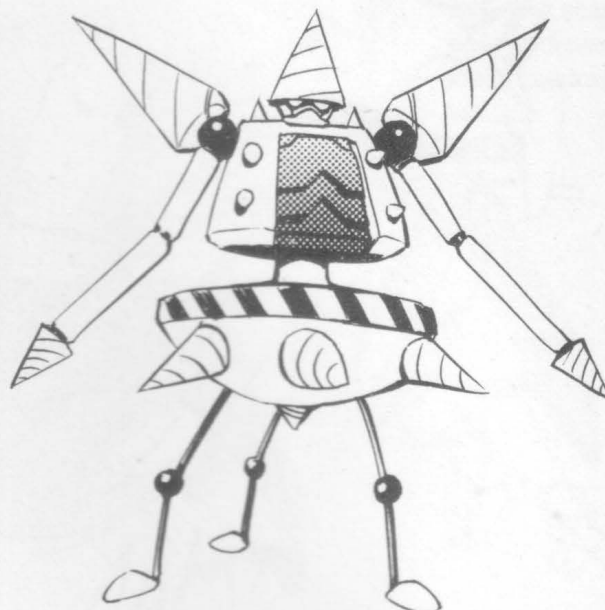
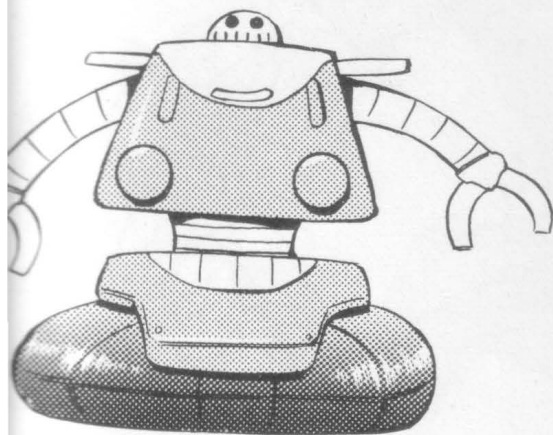
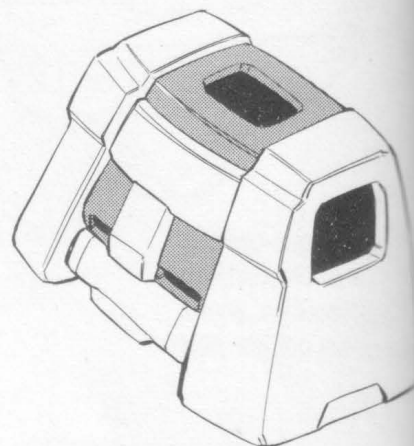
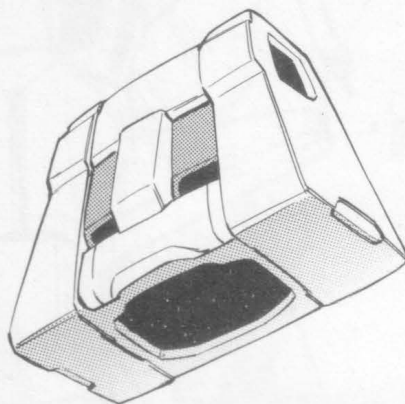
Side



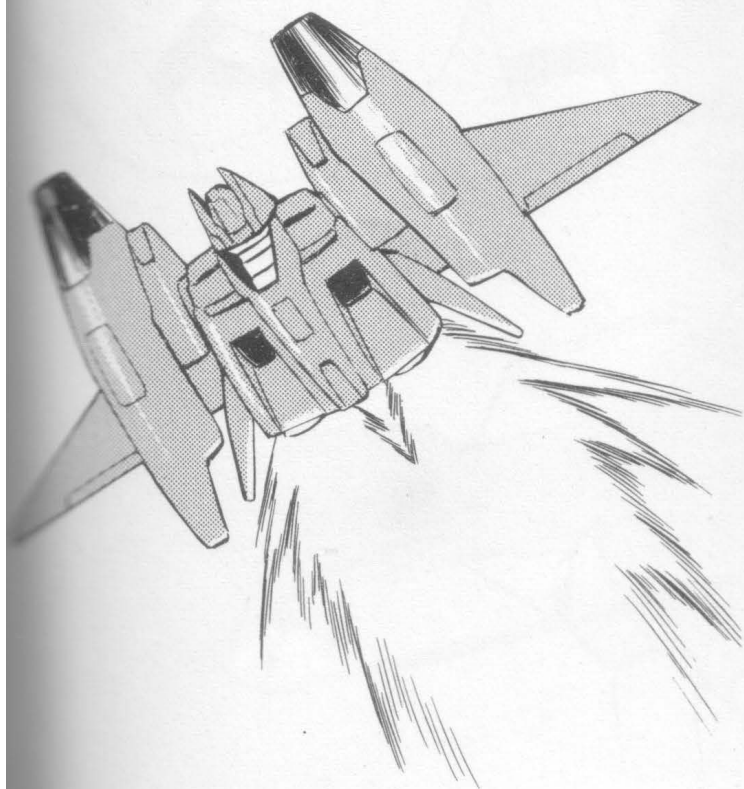
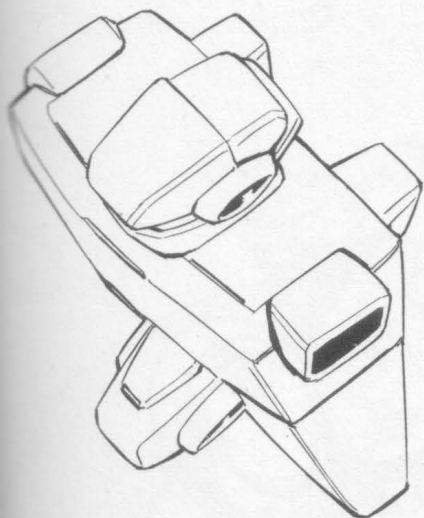
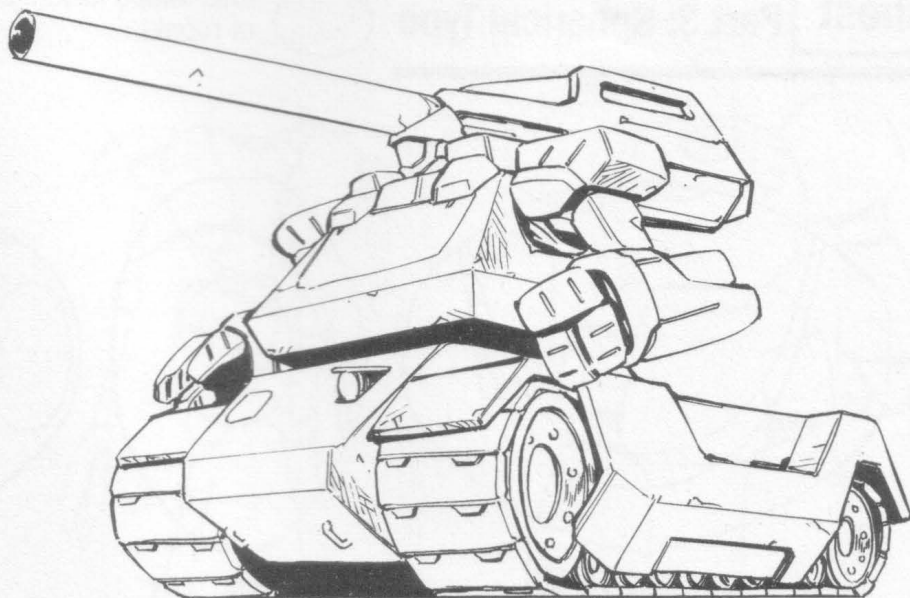
3-D view



Back

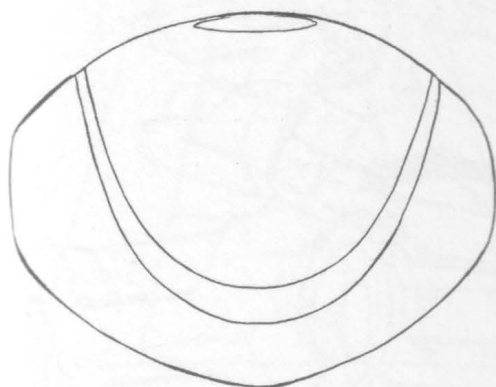


The stand-type chest enhances the originality of the lower body.

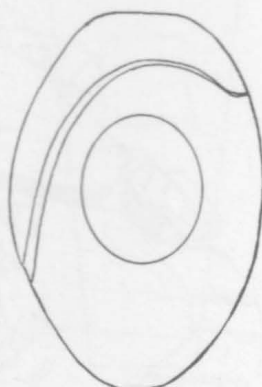




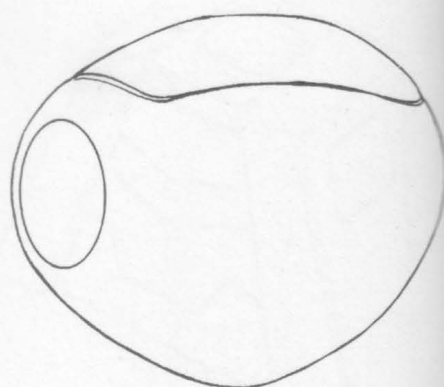
This shape is suitable for drawing all types of robots.



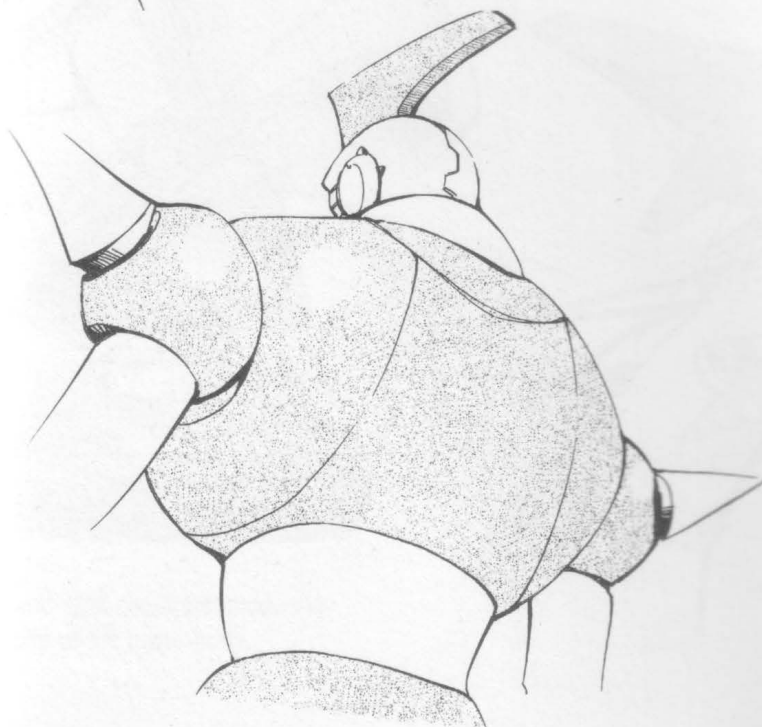
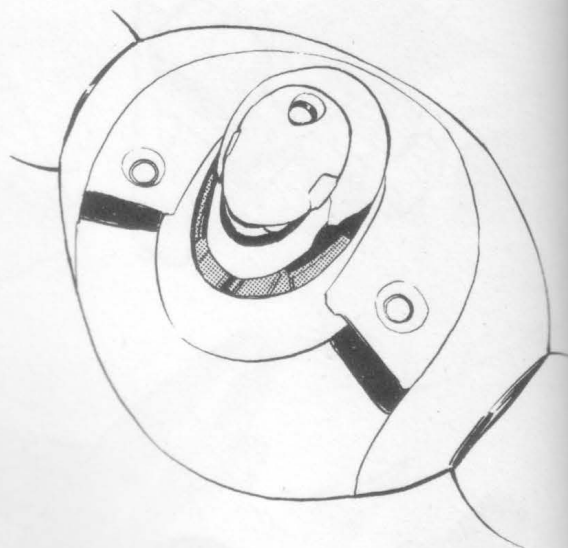
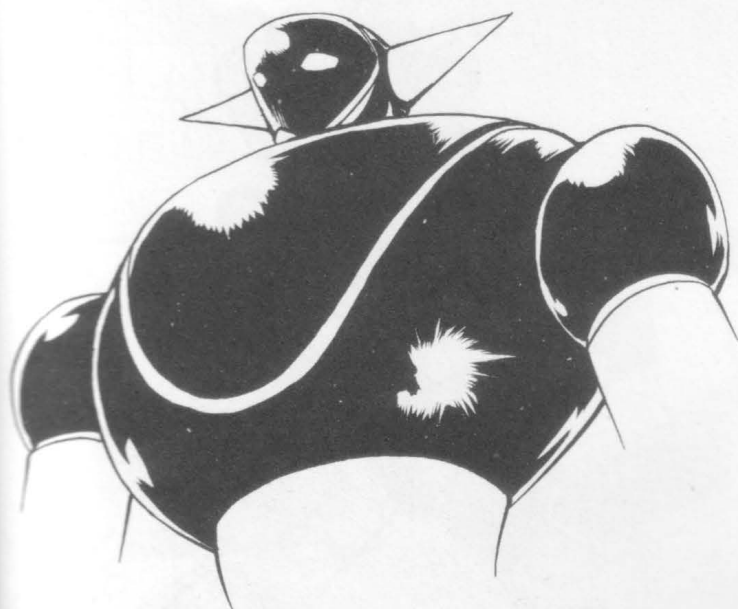
Front

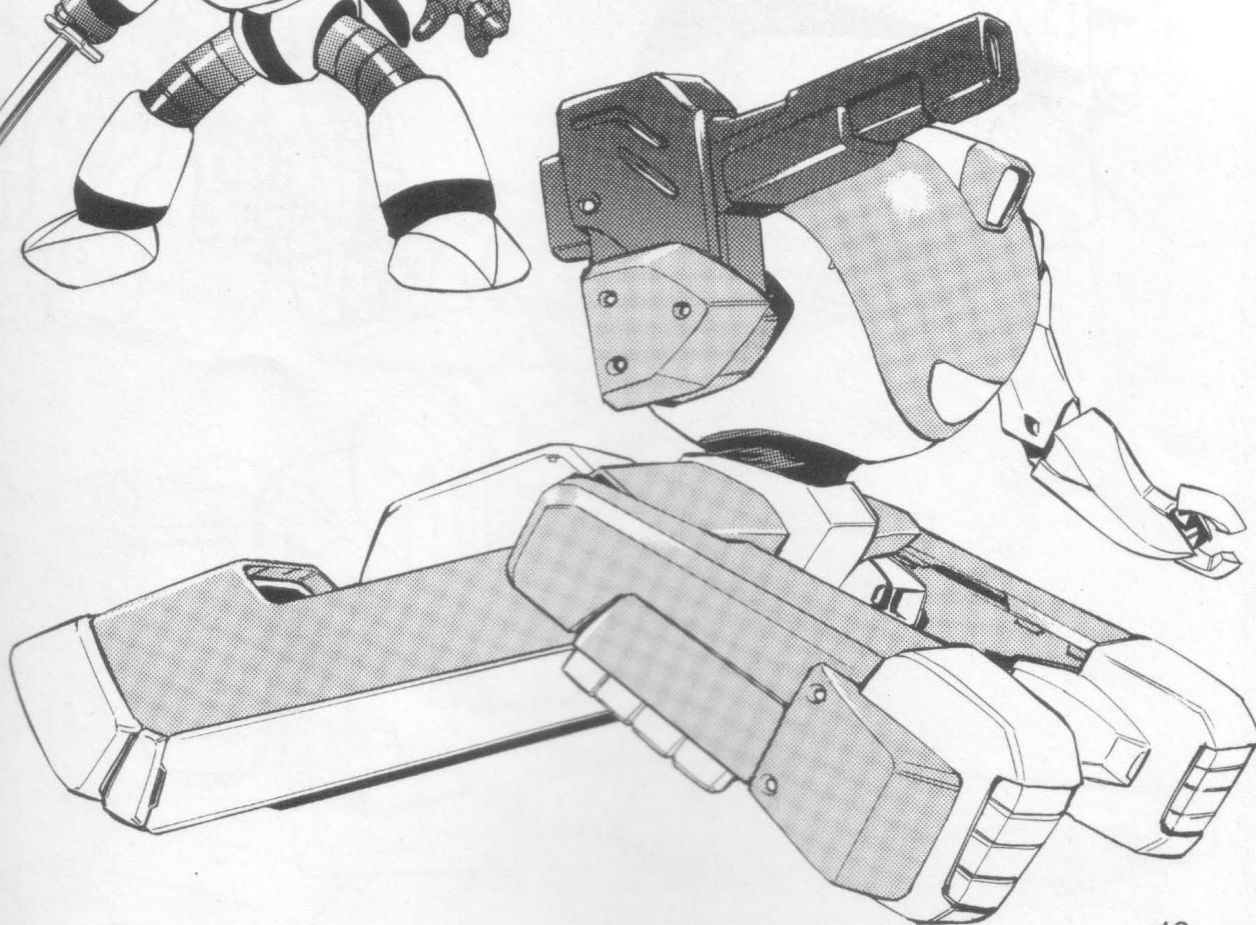
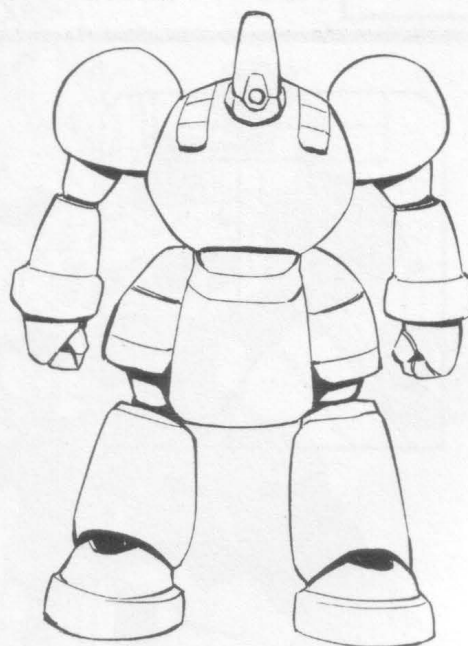
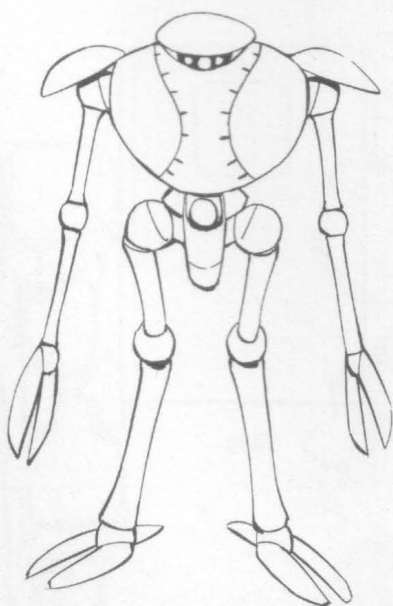
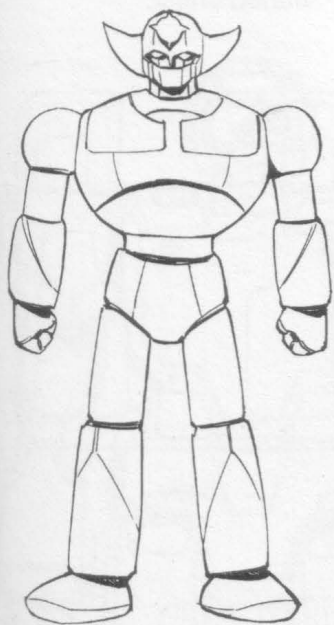


Side



Back



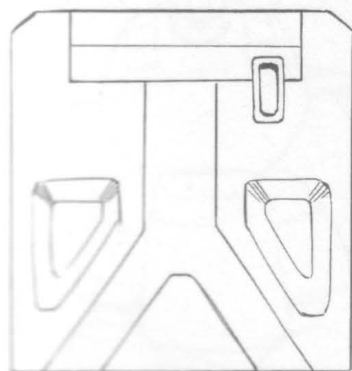


Chest

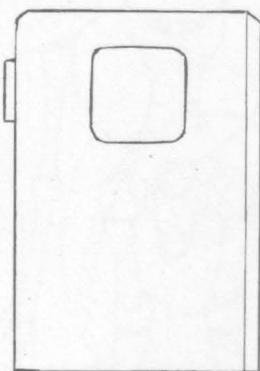
Part 4: Square Type



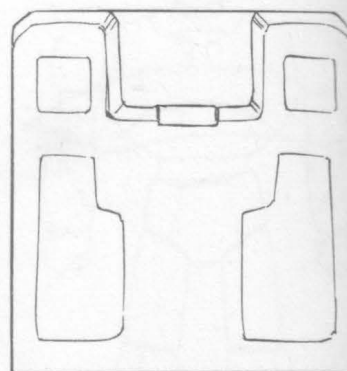
It is easy to attach a variety of parts and optional equipment to a square-shaped chest.



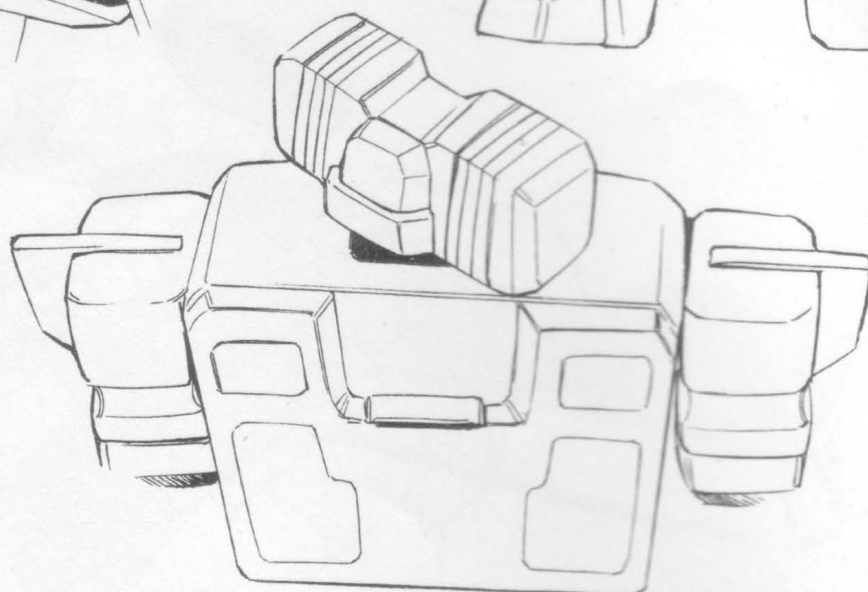
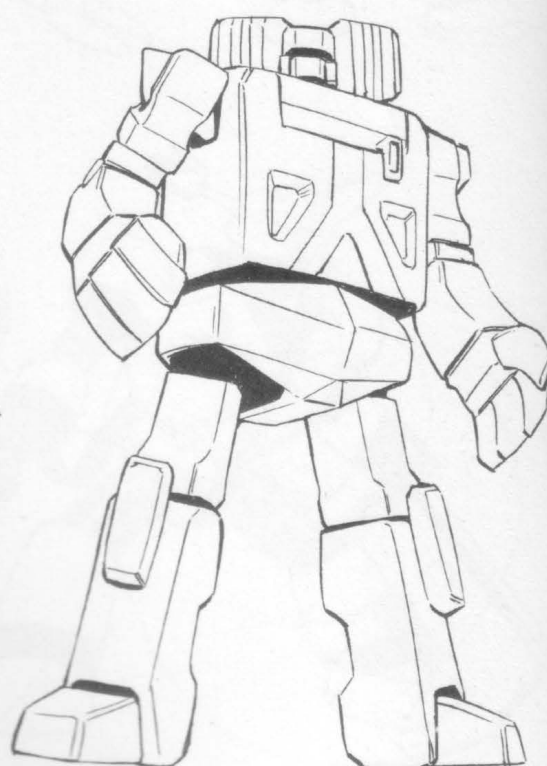
Front

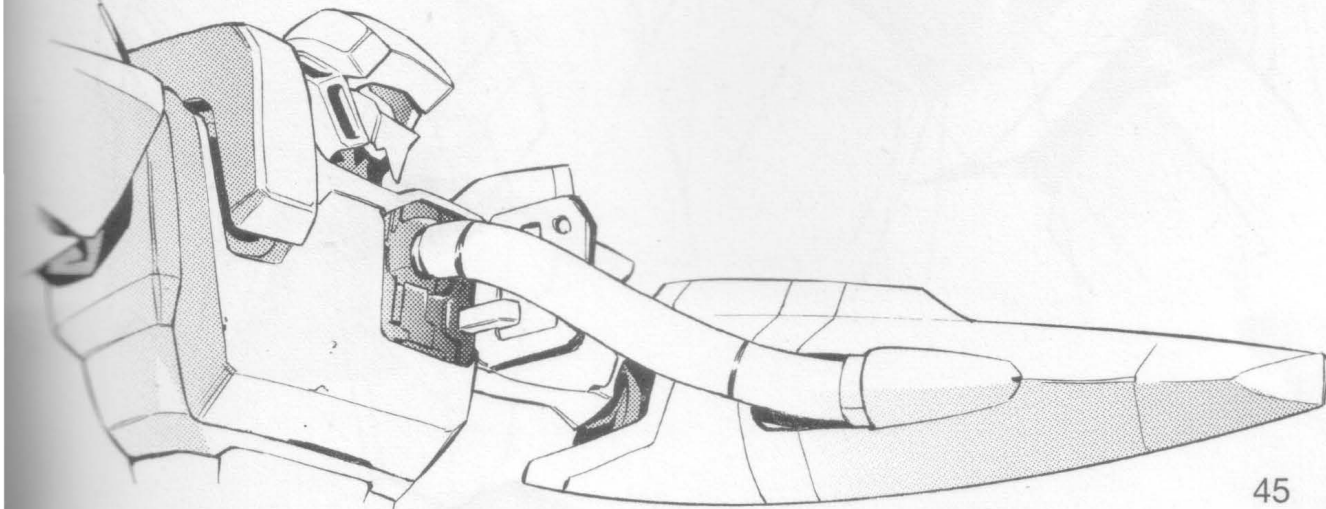
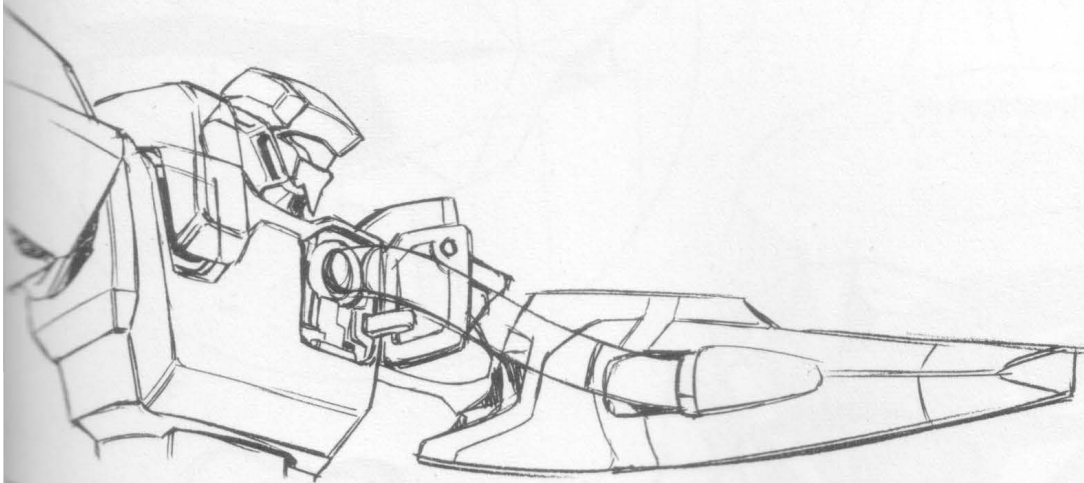
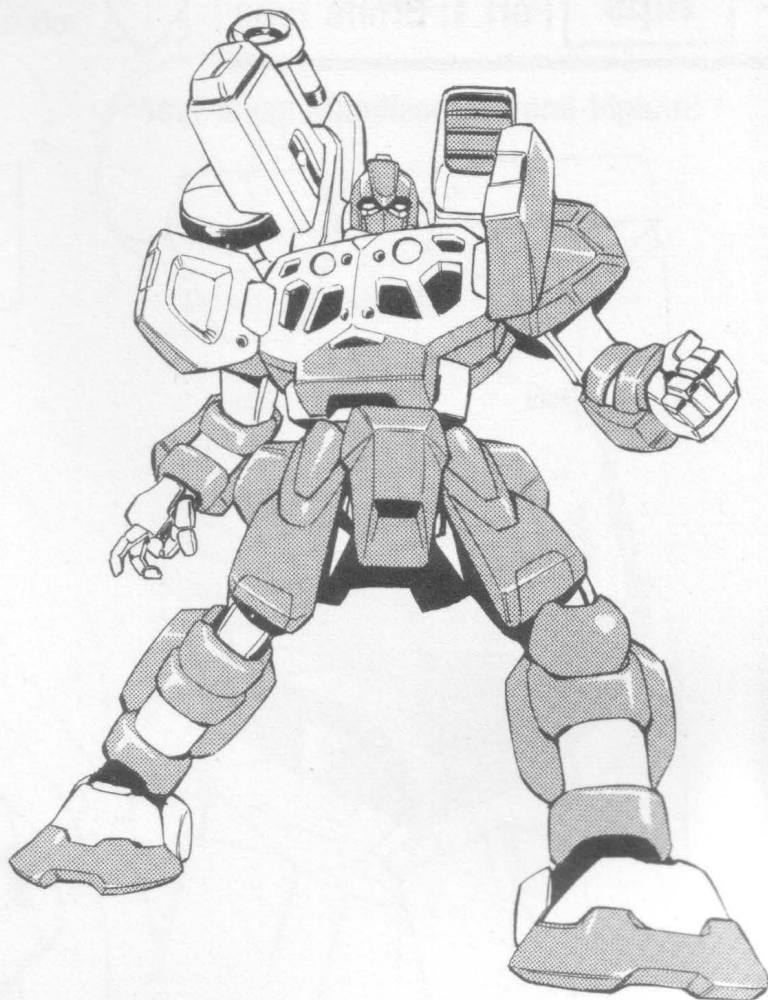
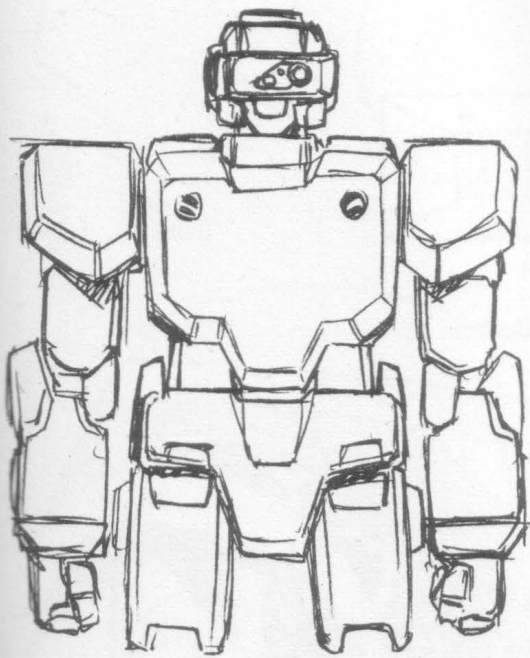


Side



Back

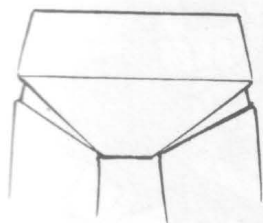




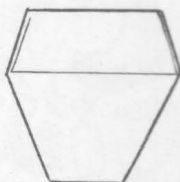


Tends to be comical. Suited to manga-type robots rather than realistic robots.

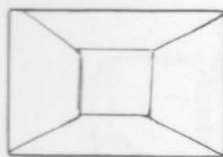
Straight-line Composition/Angular Type



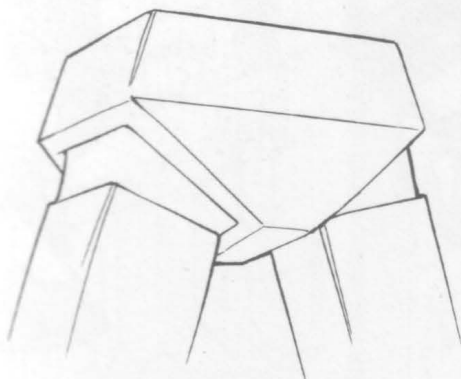
Front



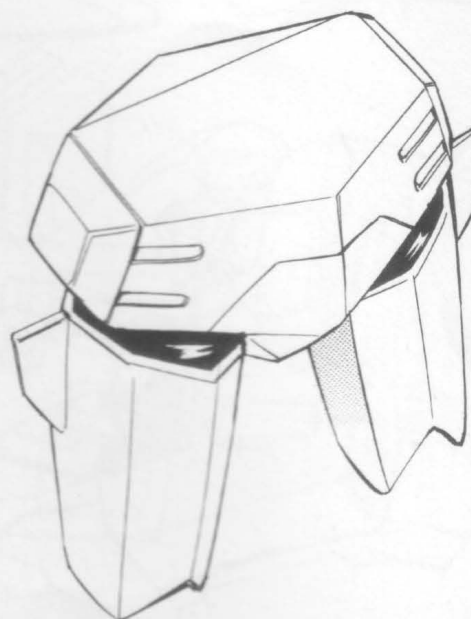
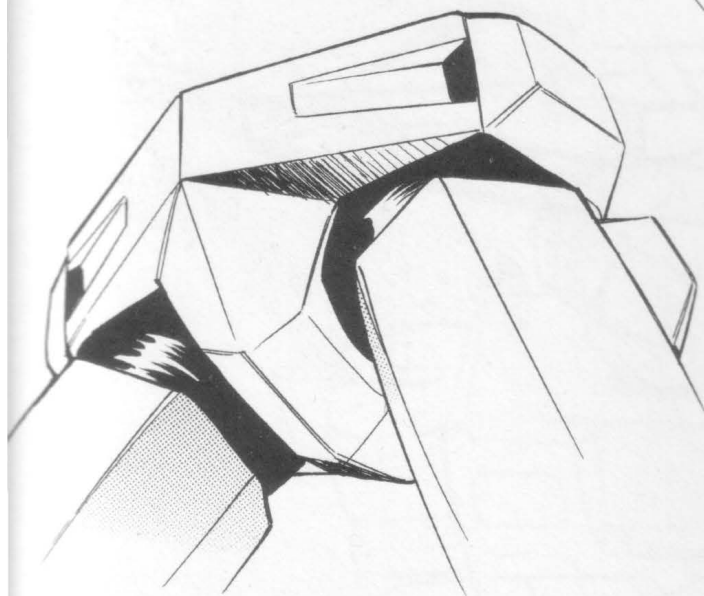
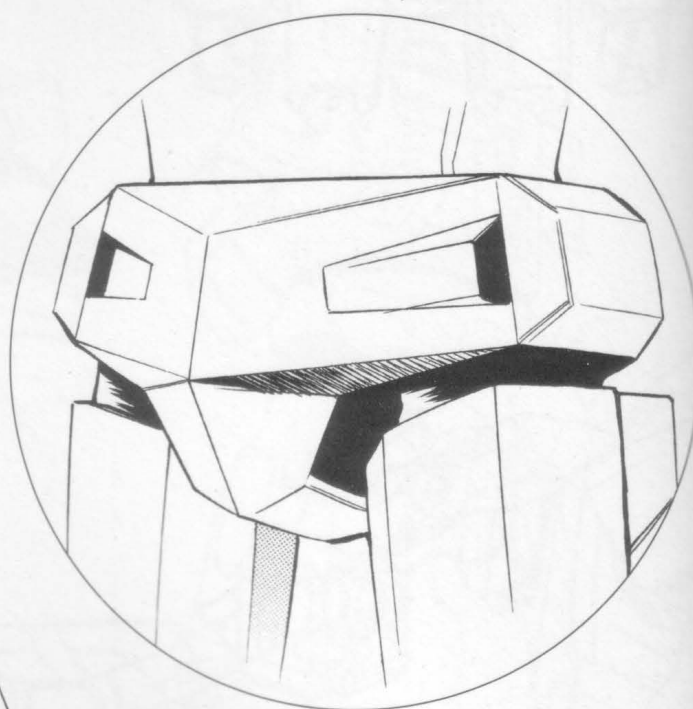
Side



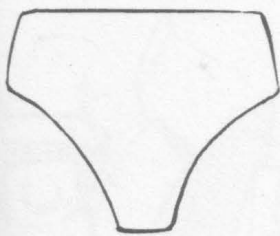
Bottom



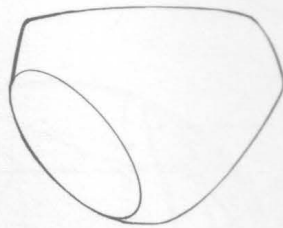
Typical structure



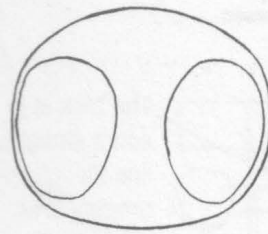
Curved-surface Composition/Spherical Type



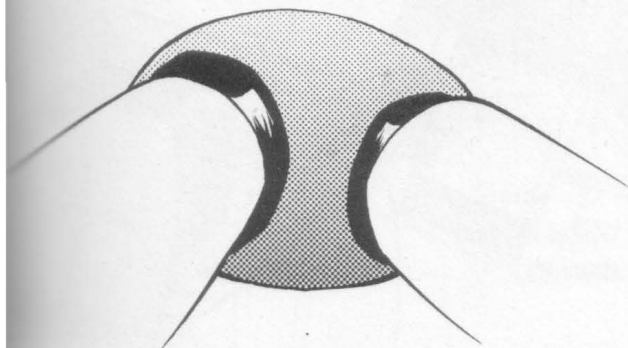
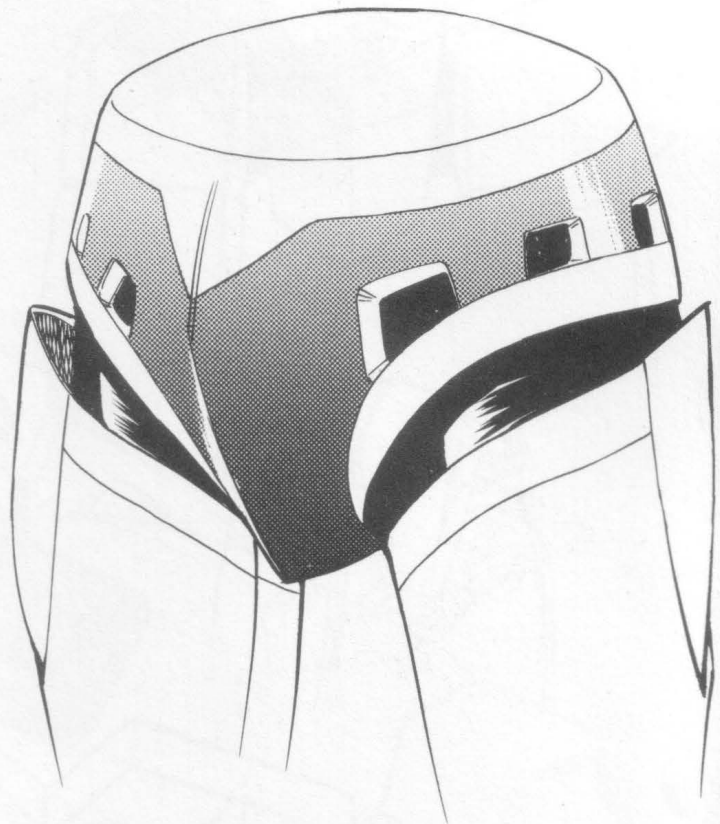
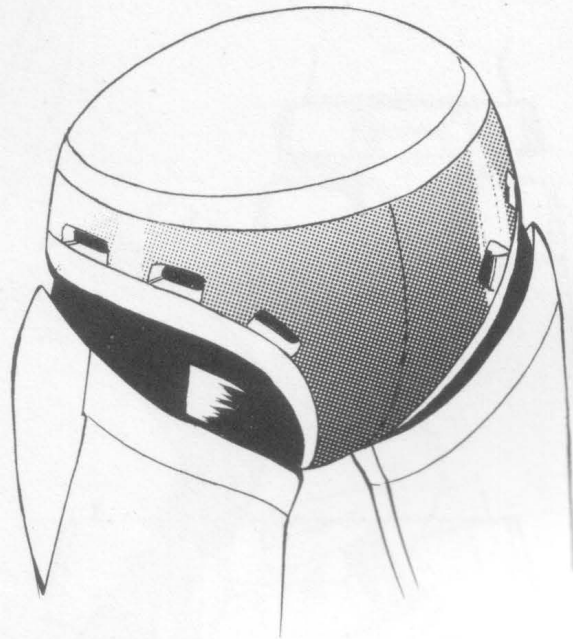
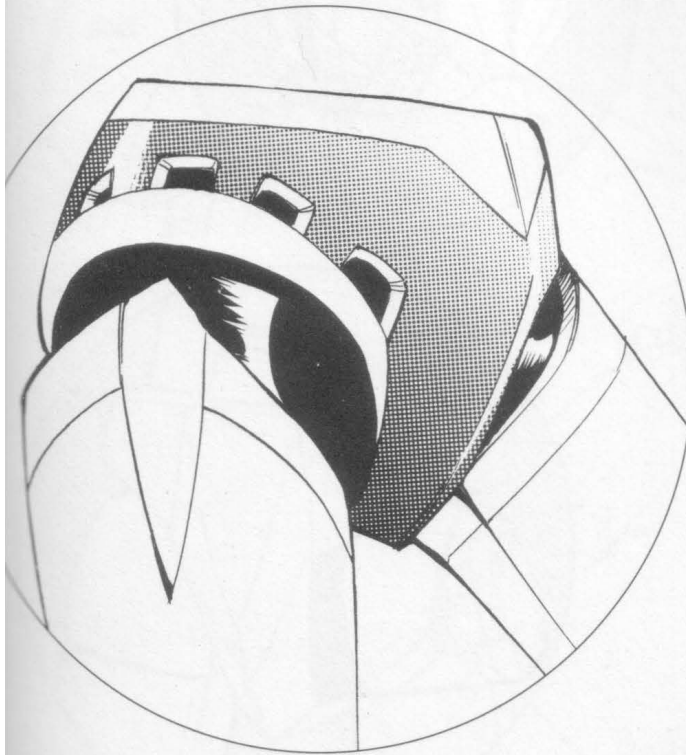
Front



Side

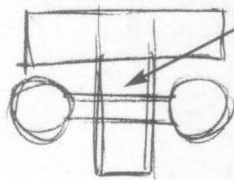
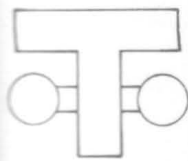


Bottom

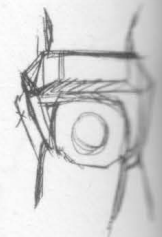
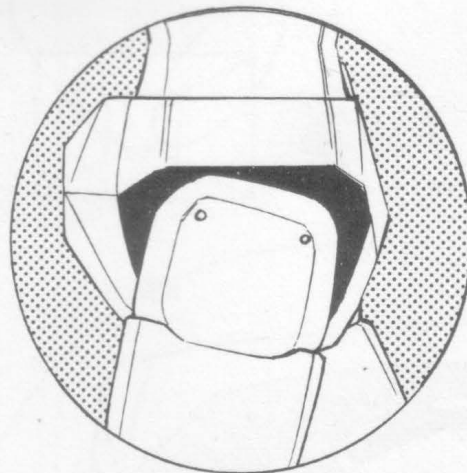




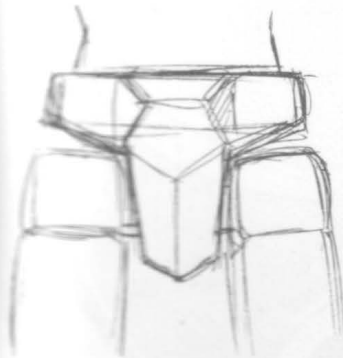
This type is ideal for drawing combat robots.



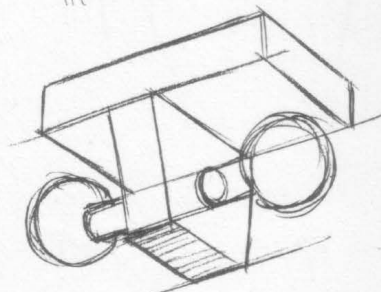
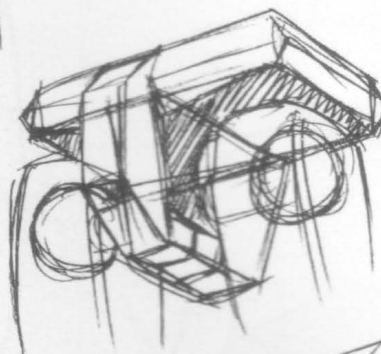
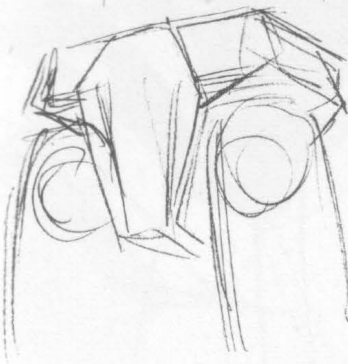
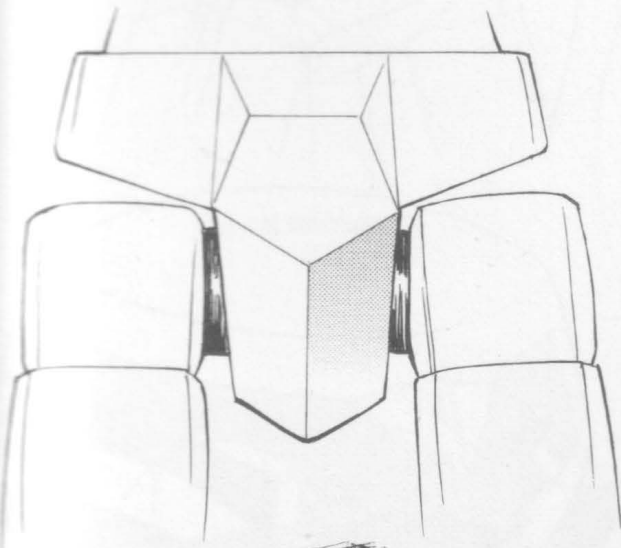
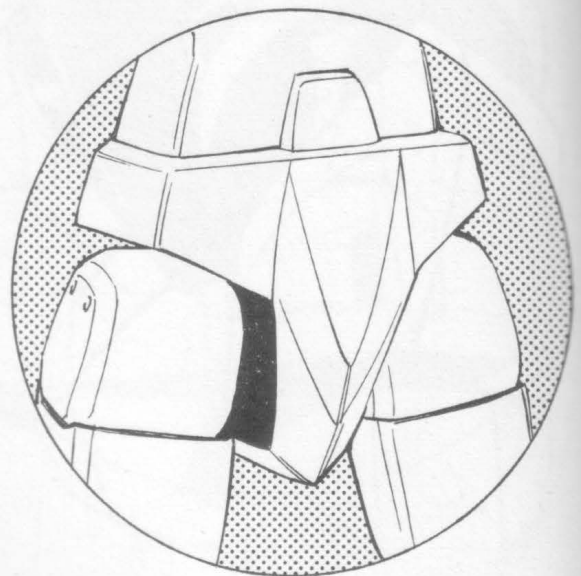
The trick is to add a straight line for reference.



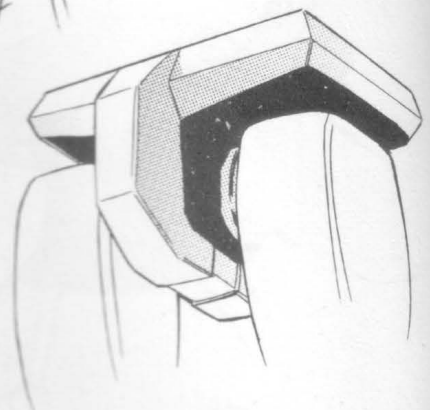
Side

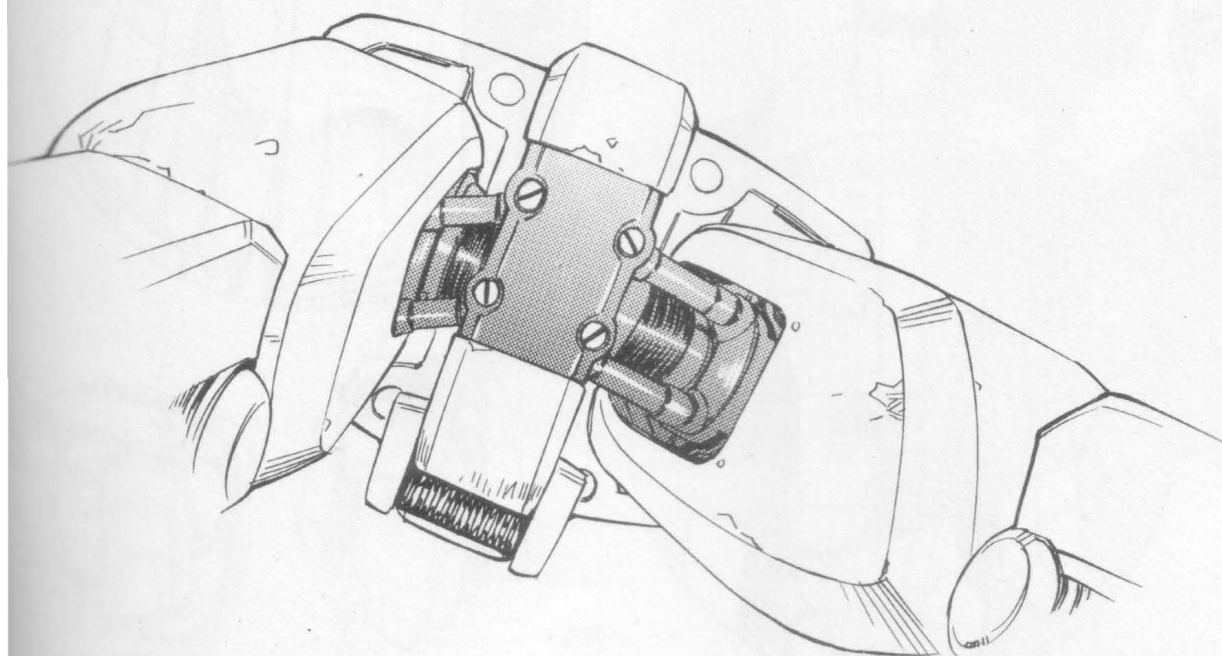
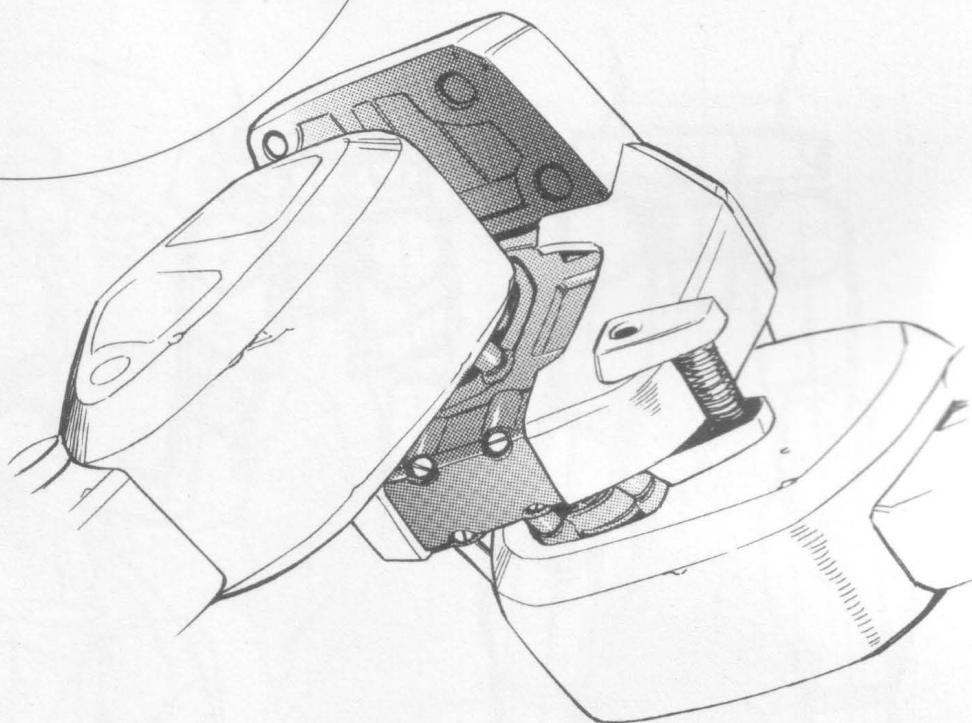
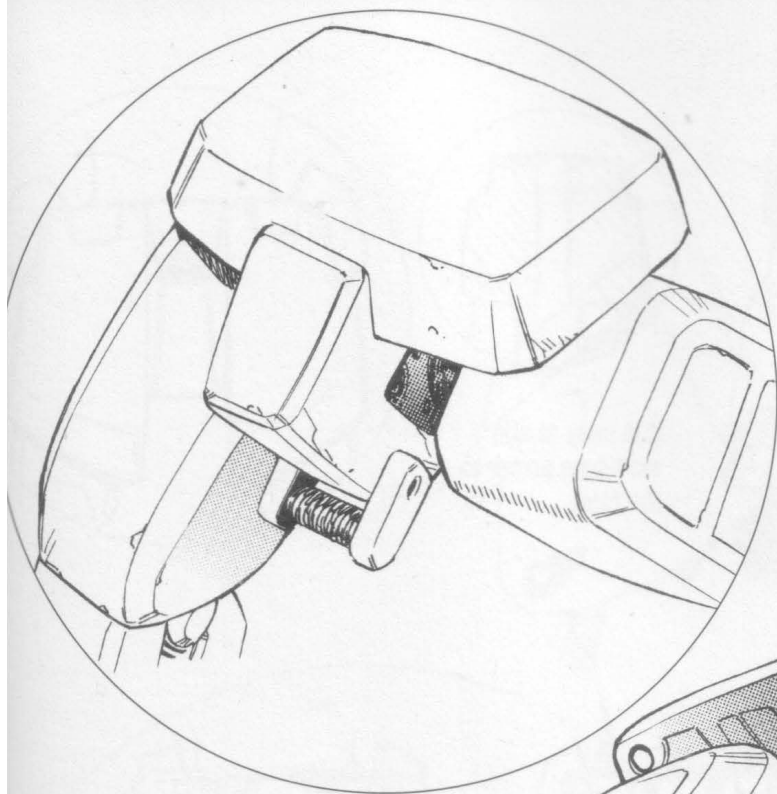


Front

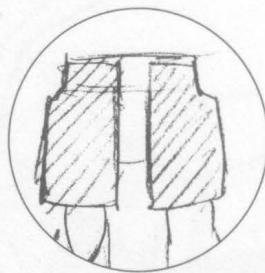
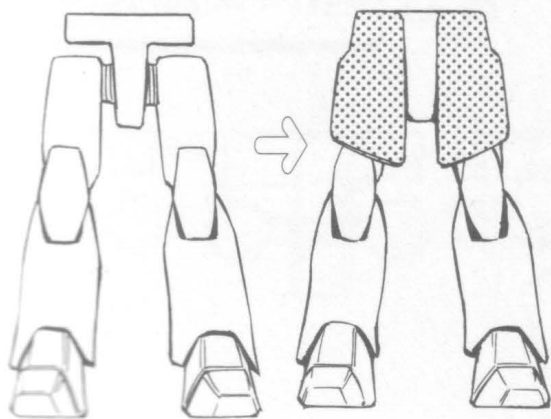


Typical hip joint structure

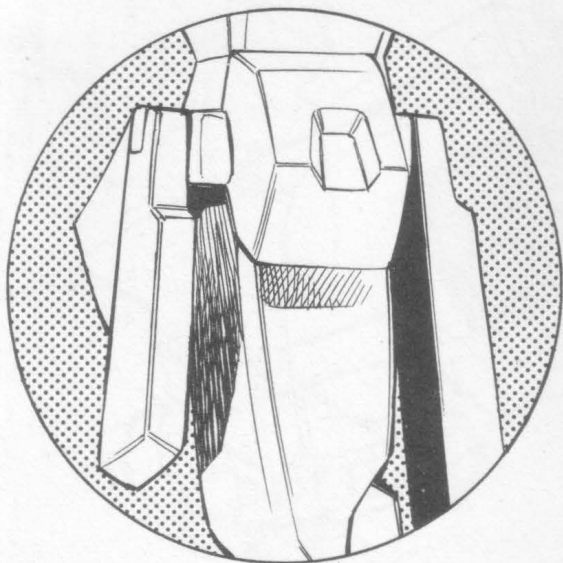
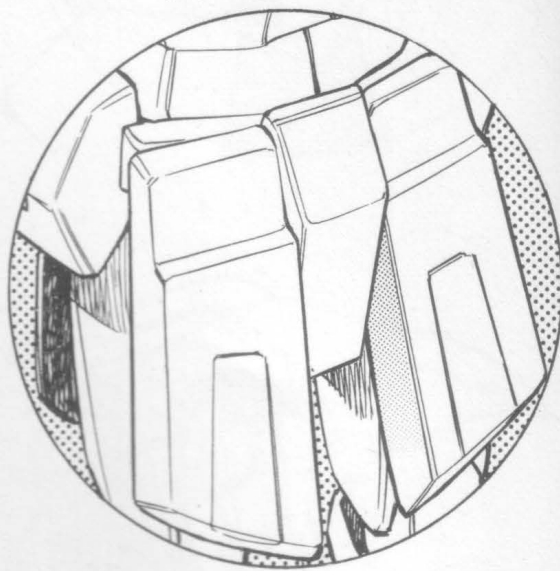
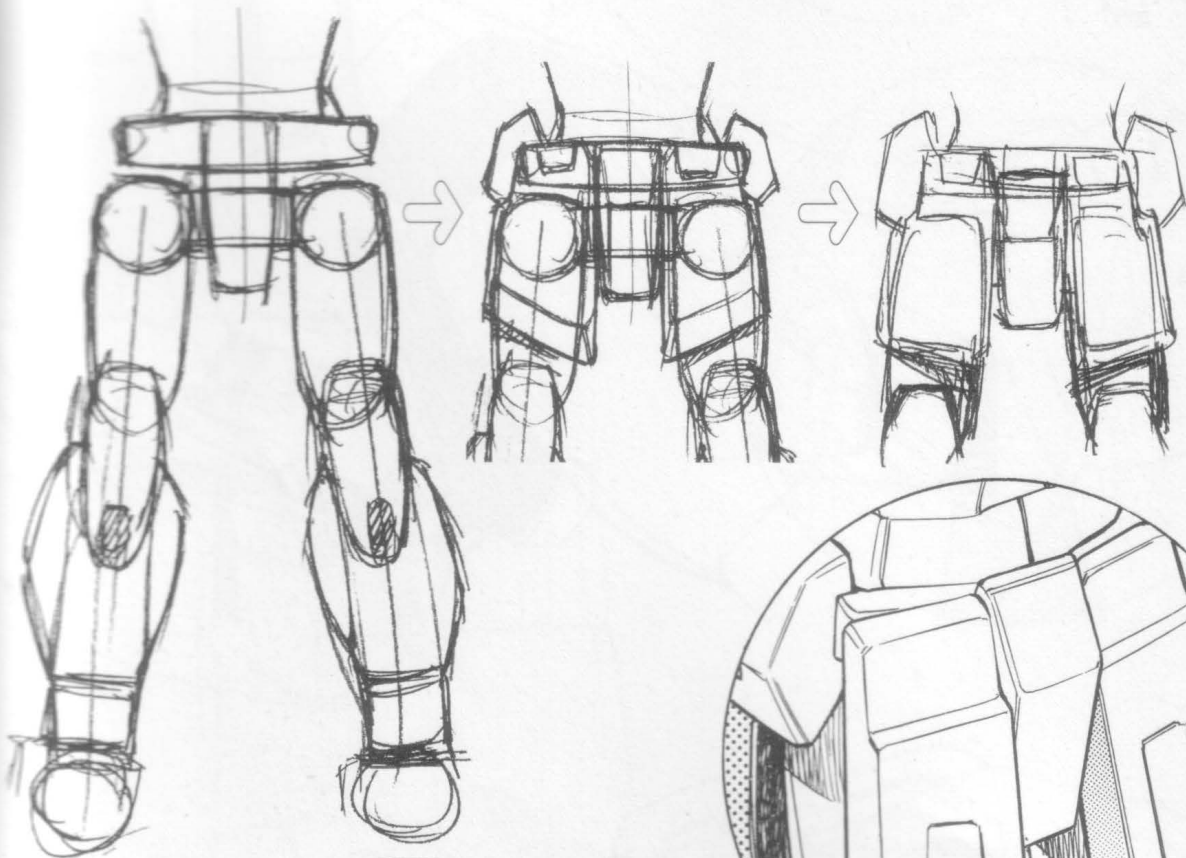
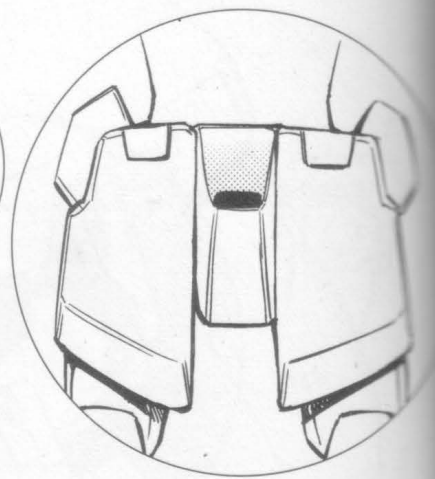


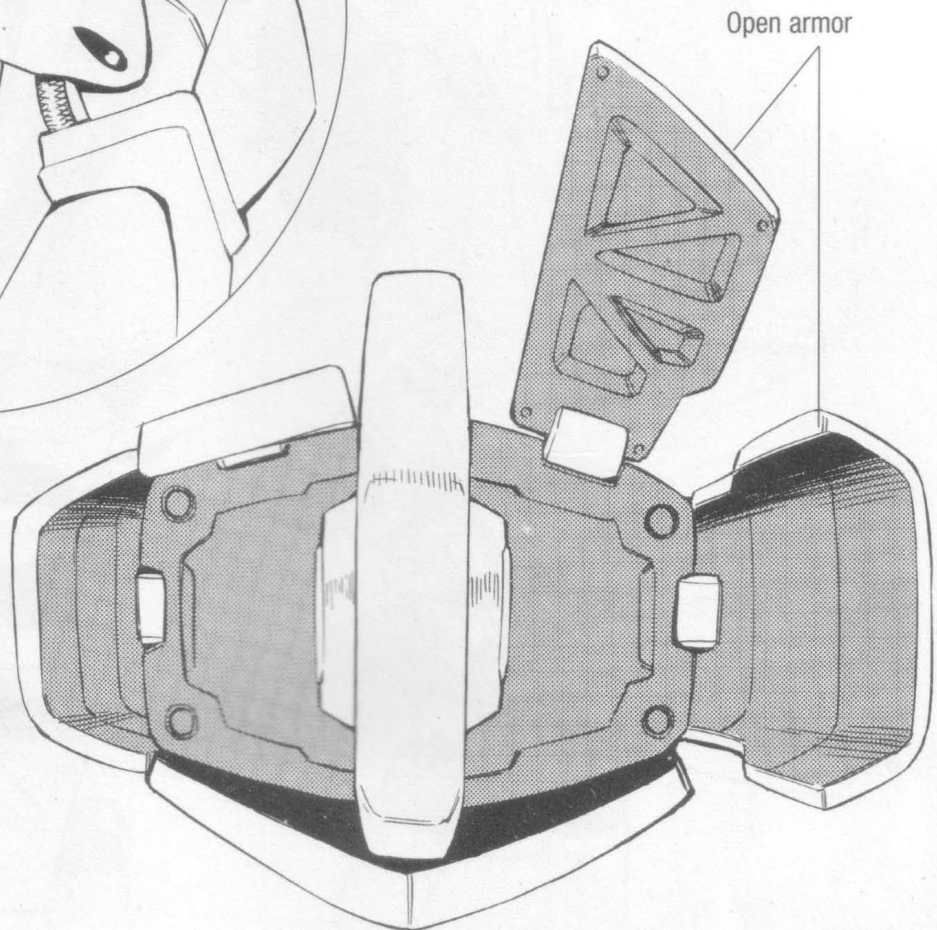
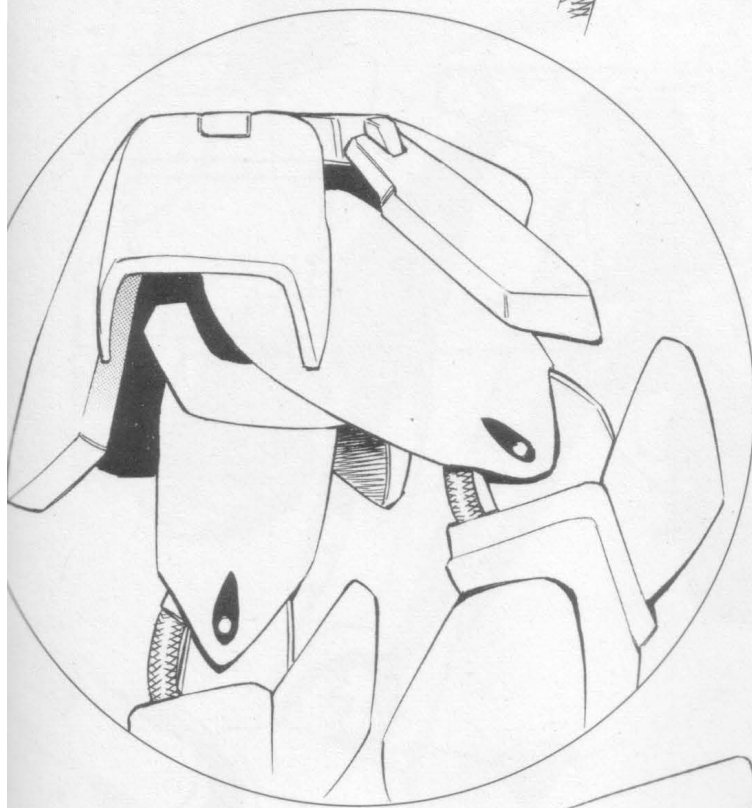
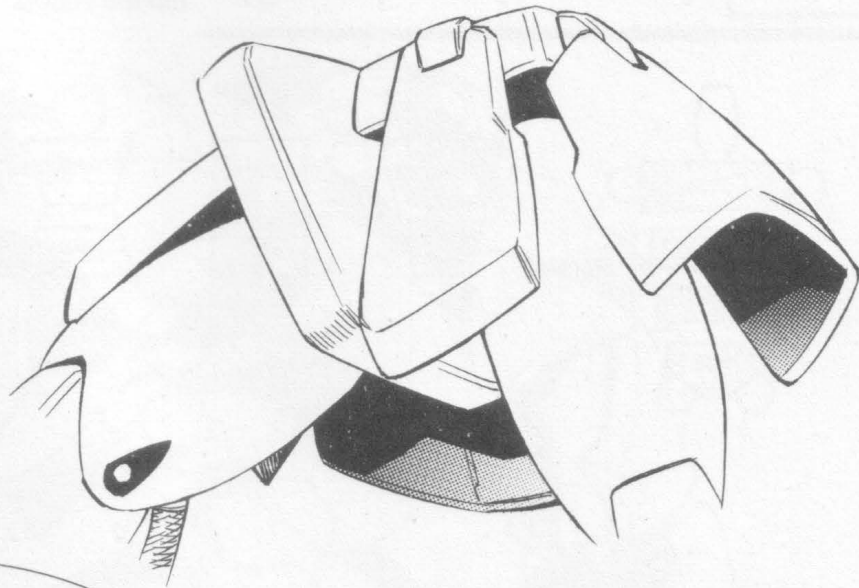


T Hip Joint Variations

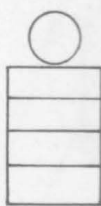
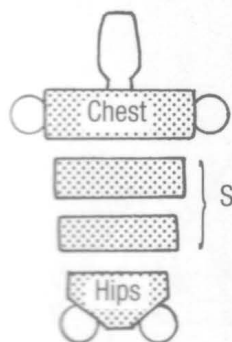


It is easy to add skirt-type armor to the hips.

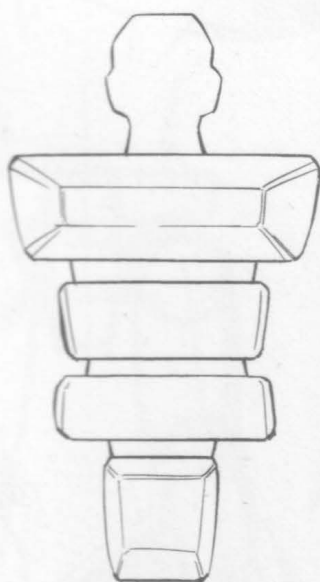




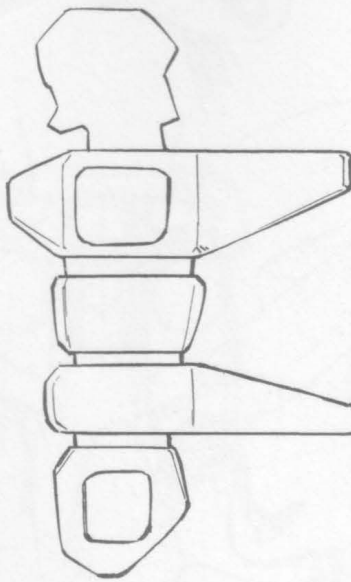
Use this body type to design original, unique robots.



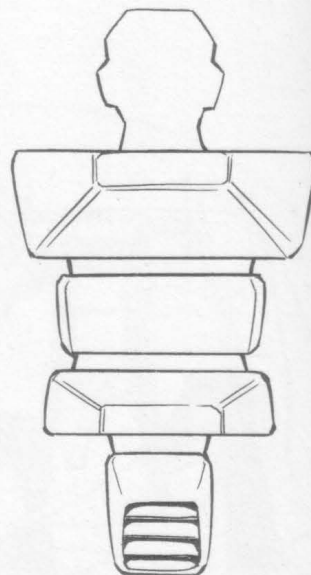
You are free to choose the number of joints, shape, thickness and form.



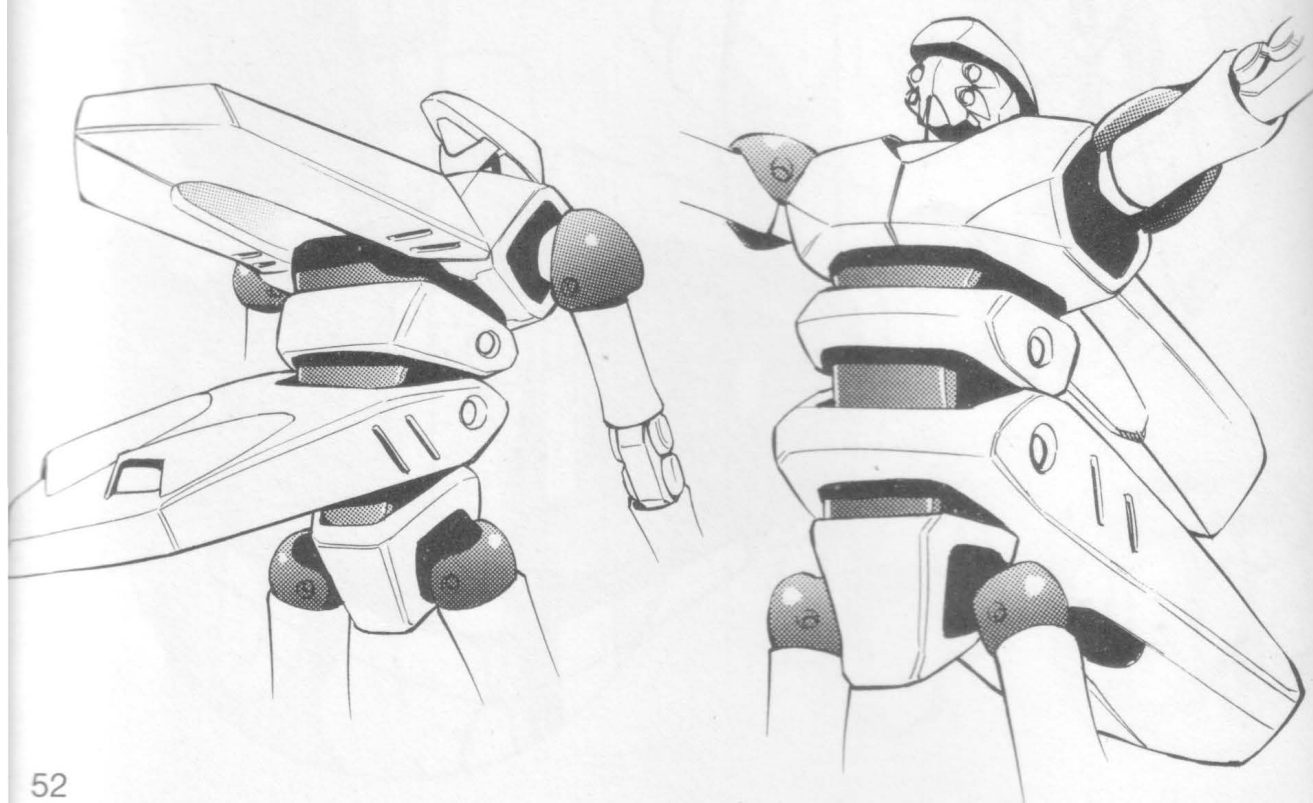
Front

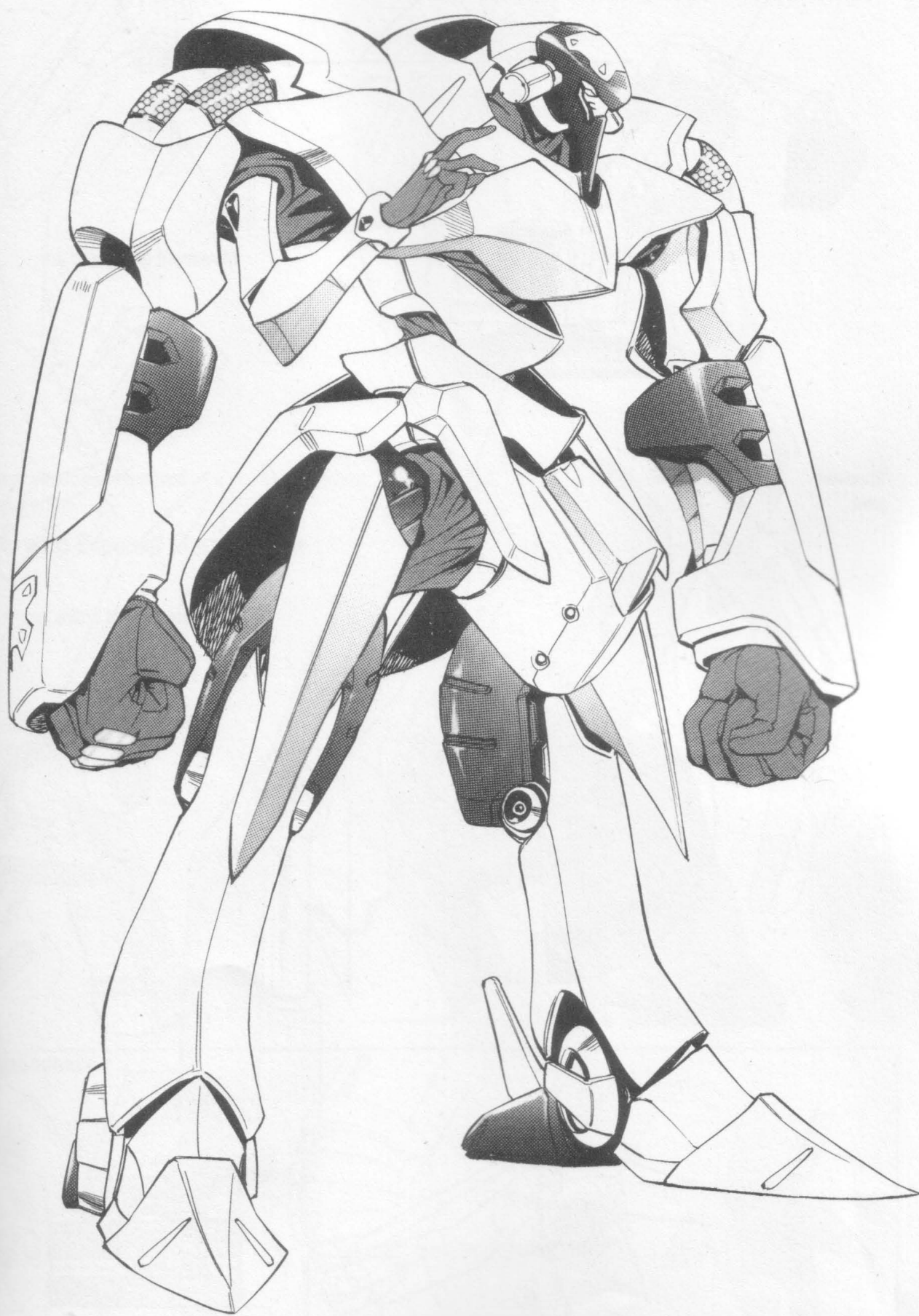


Side



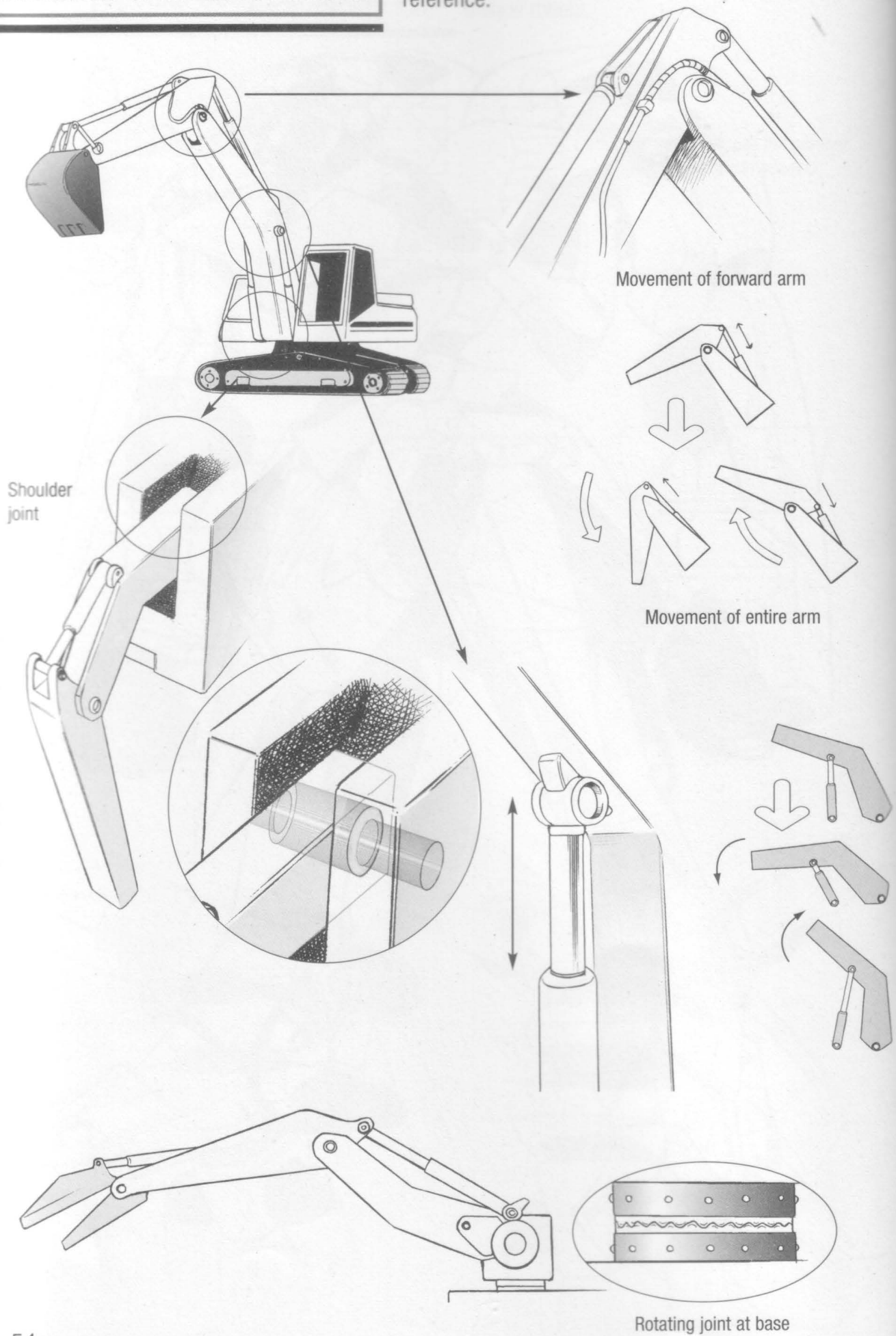
Back





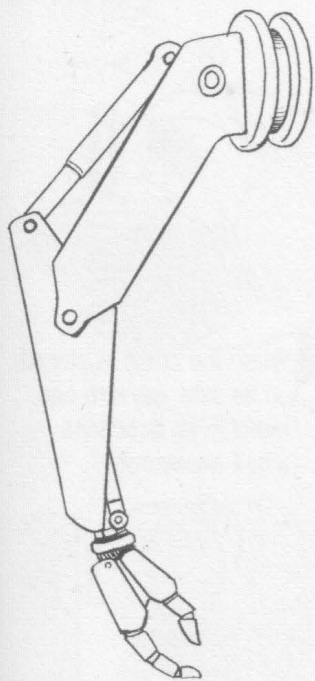
Shoulder and Elbow Joints

Use the arms of cranes and excavators as a reference.

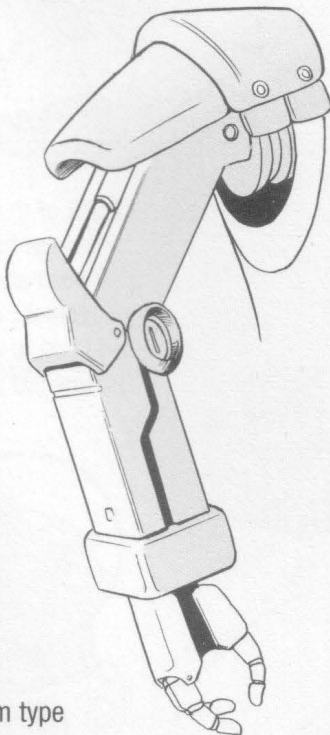


Arm Forms

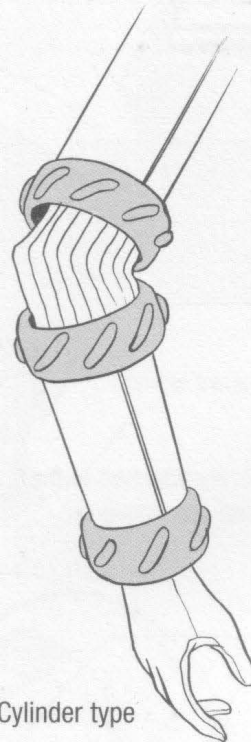
They are based on prisms and cylinders.



The arm structure resembles that of a crane.

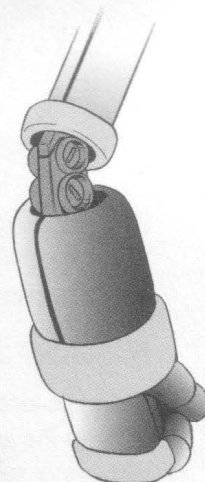
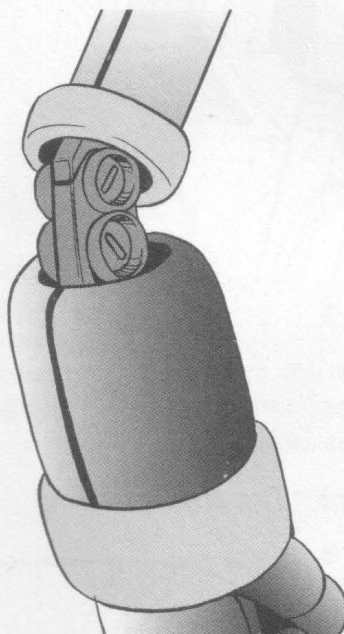
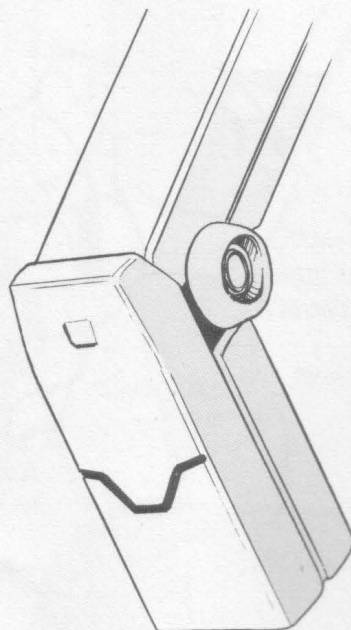
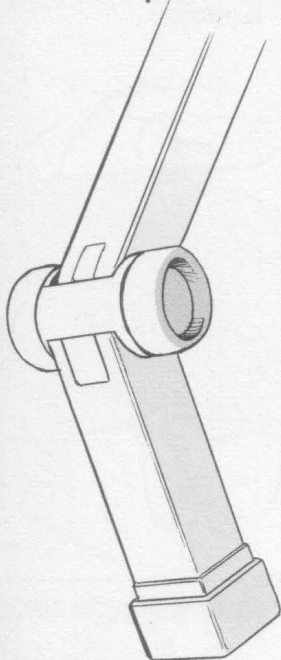


Prism type

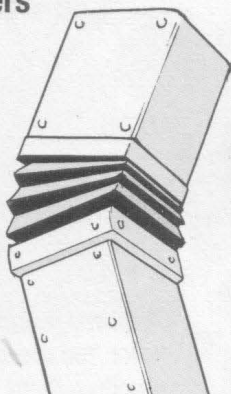
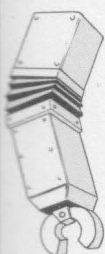


Cylinder type

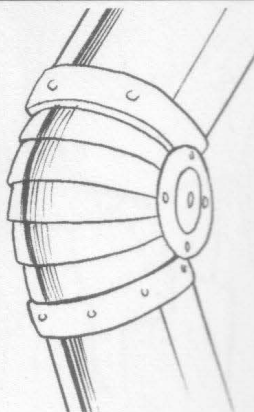
Arms with Exposed Elbow Joints



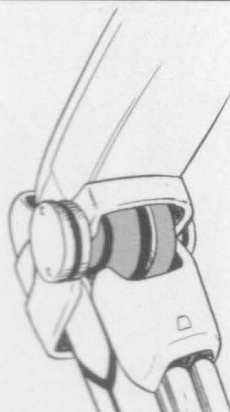
Joint covers



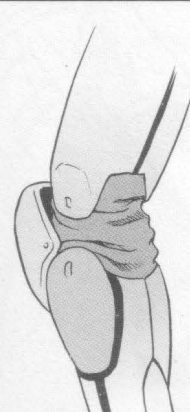
Accordion type



Metal cover

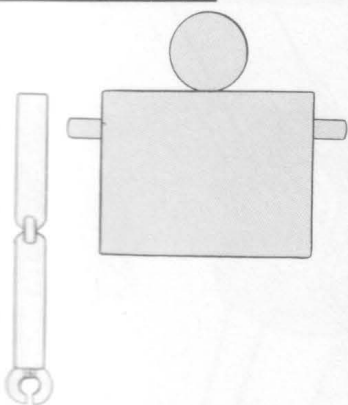


Armor type

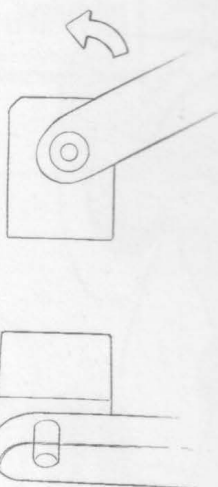


Rubber cover

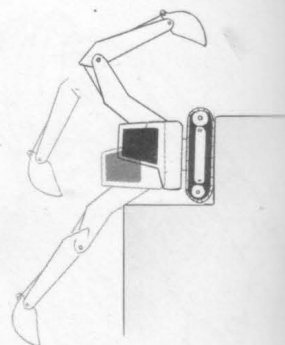
Shoulders



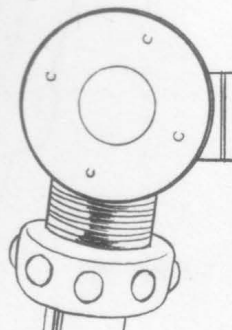
The arm is merely attached to the support and can only move up and down.



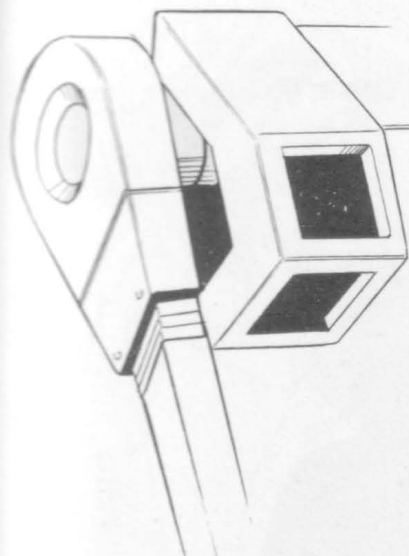
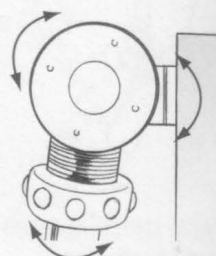
Think of the arm as crane sitting on top of a shoulder. Forward and backward movement is possible in addition to upward and downward movement.



When the crane is placed on its side, the arm can move in all directions, albeit awkwardly.

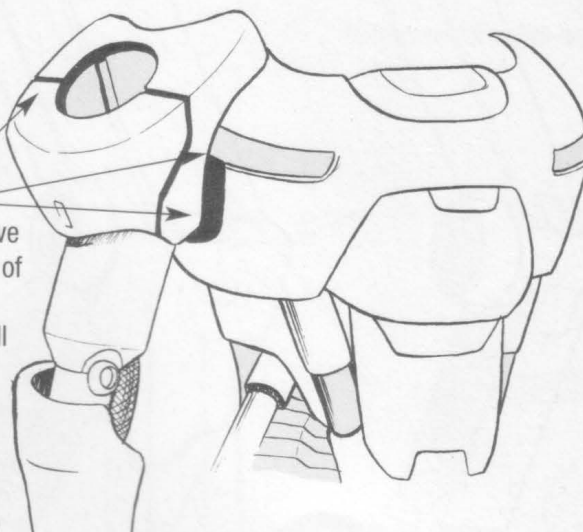


A shoulder joint emphasizing rotation. Crane-like movement is possible.



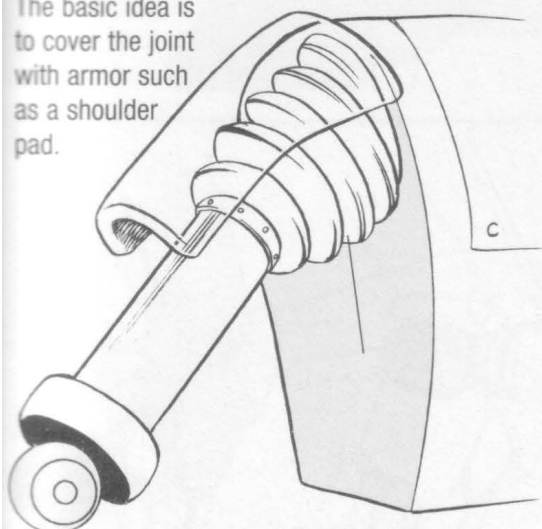
Shoulder design with traditional function allowing upward and downward movement only.

Groove lines give the impression of smooth movement in all directions.

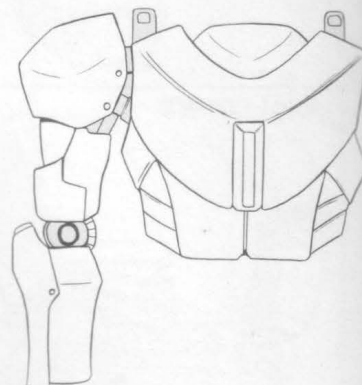
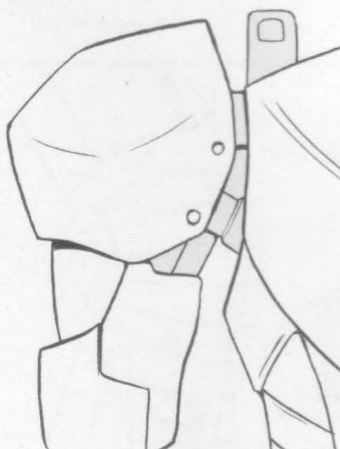


Shoulder Joint Covers

The basic idea is to cover the joint with armor such as a shoulder pad.

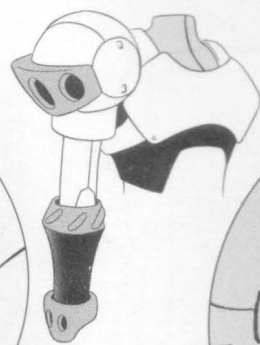
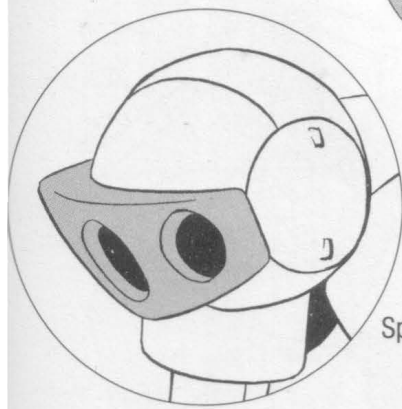


Rubber cover

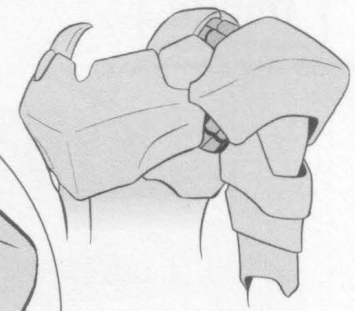
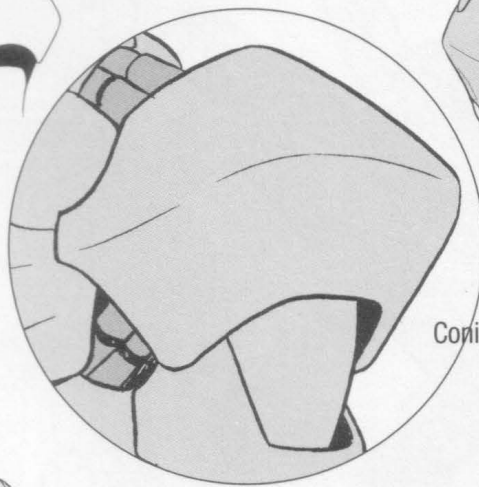


Cover the shoulders with armor. You can create a sense of uniformity by designing the arms and upper body at the same time.

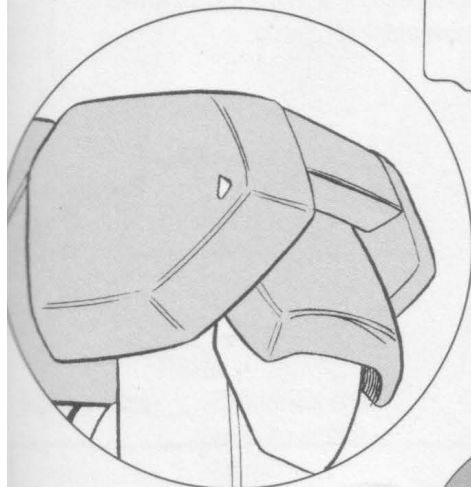
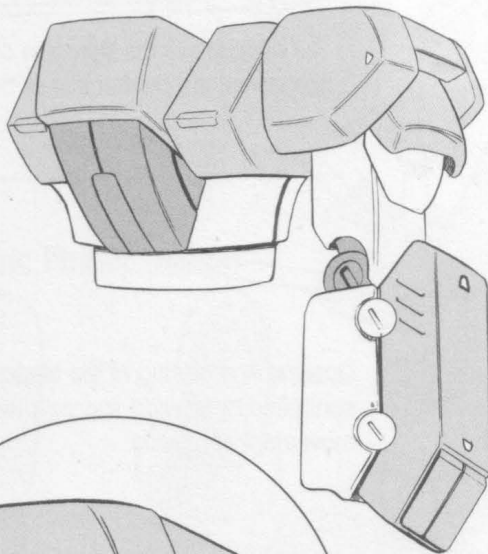
Shoulder Pads/Armor



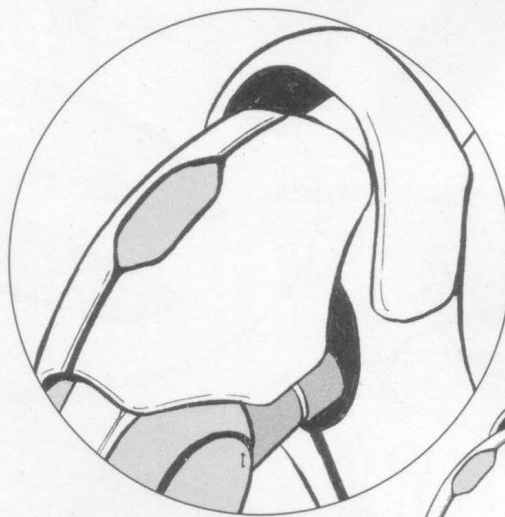
Spherical type



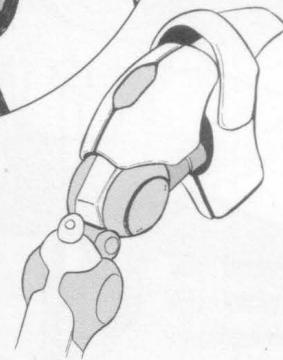
Conical transformation type



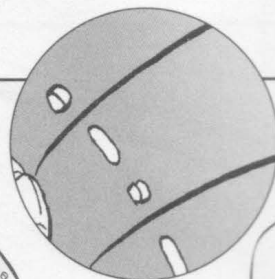
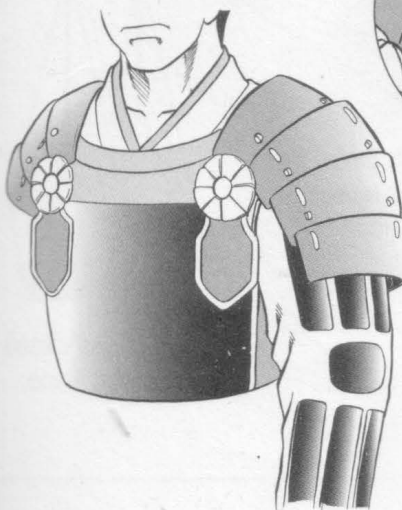
Square type



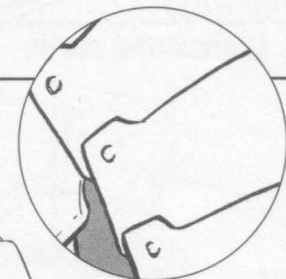
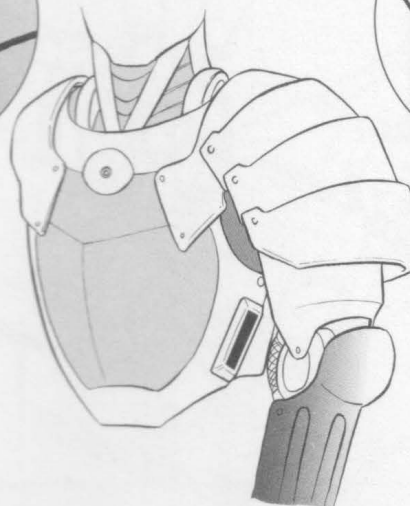
Belt and shield type



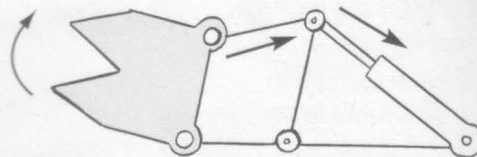
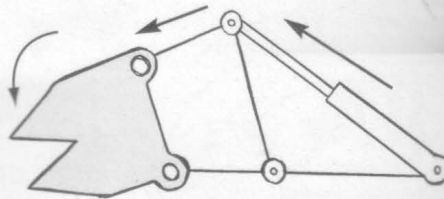
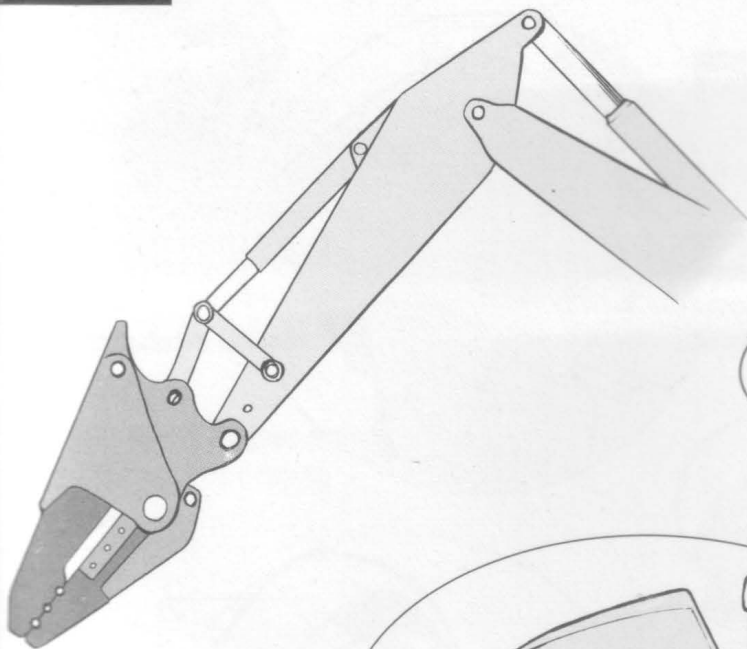
Armor shoulder pads



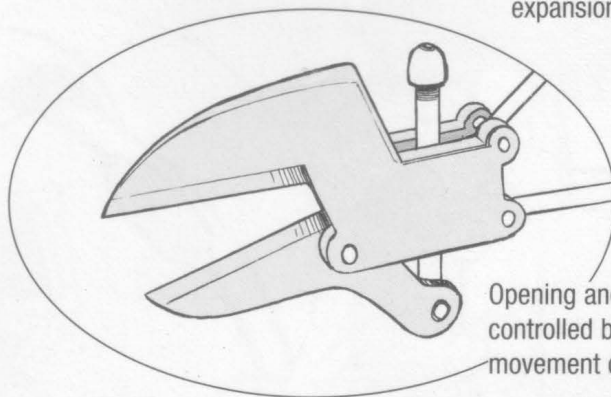
Tied together with string



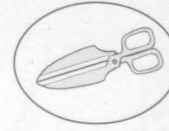
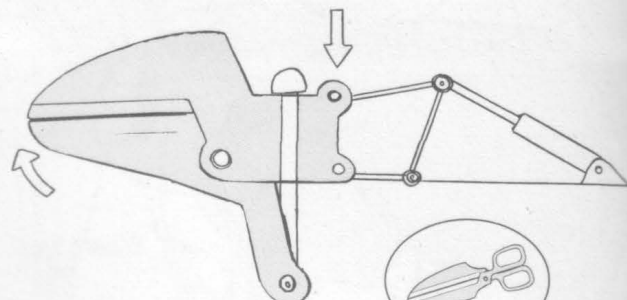
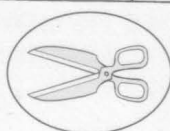
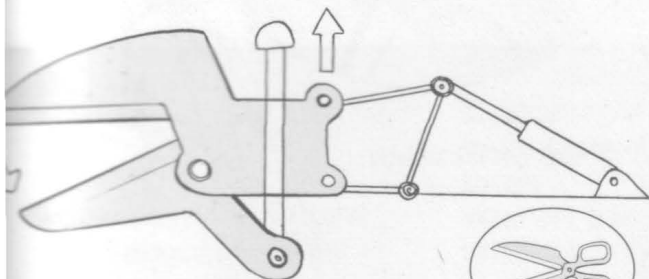
Affixed with rivets



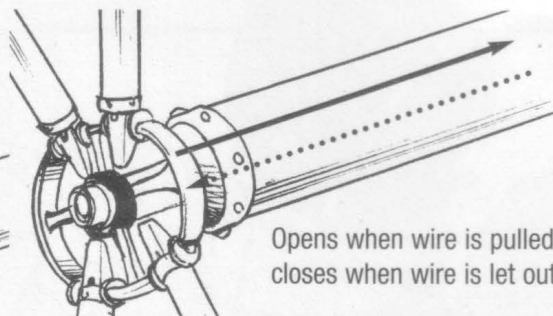
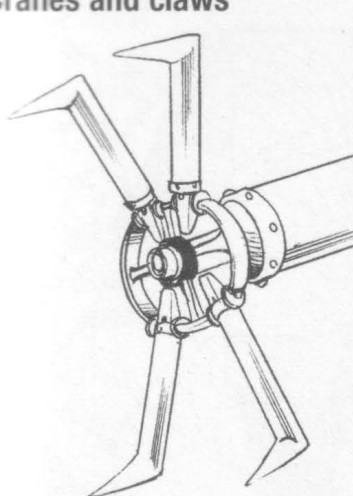
The direction of the sheers is changed by expansion and contraction of the shaft.



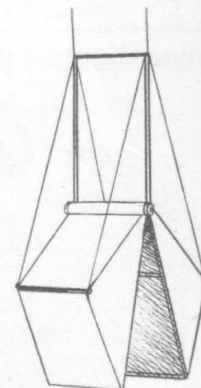
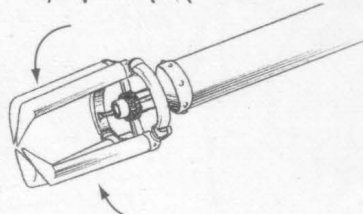
Opening and closing of the blades is controlled by upward and downward movement of pistons.



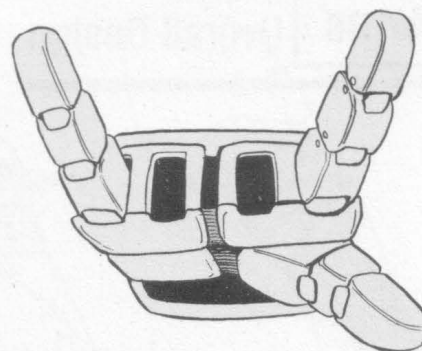
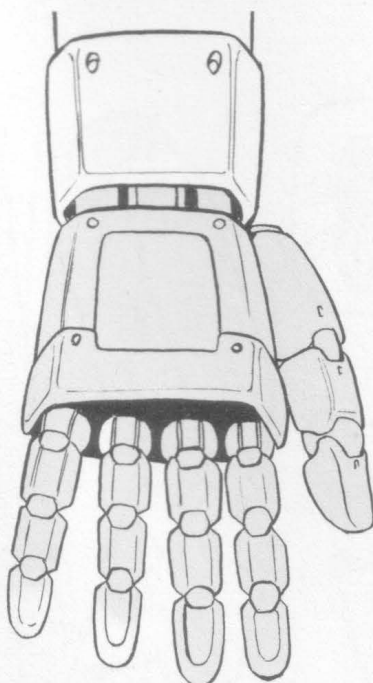
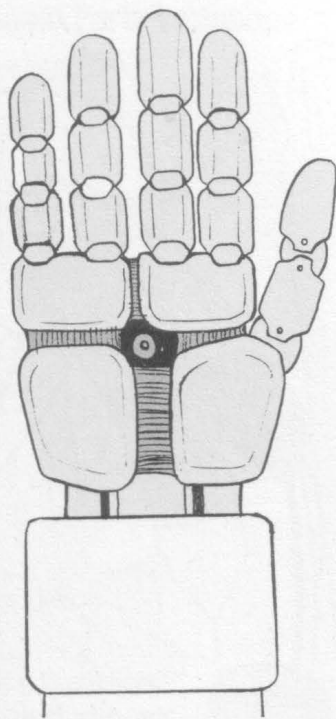
Cranes and claws



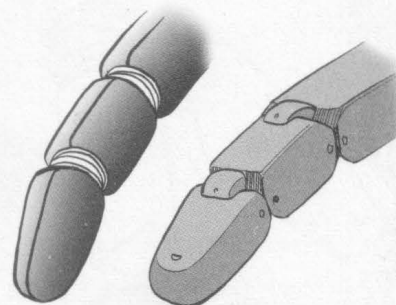
Opens when wire is pulled and closes when wire is let out.



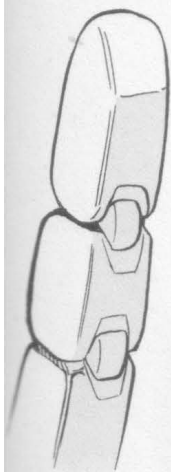
Opens and closes with wire alone.



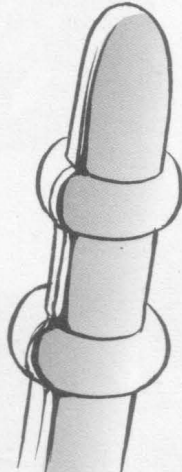
Fingers are sometimes detachable.



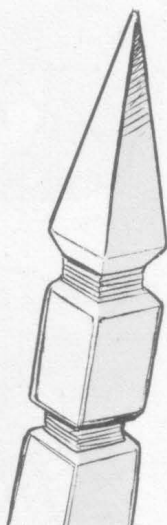
Basic Finger Design



Square base

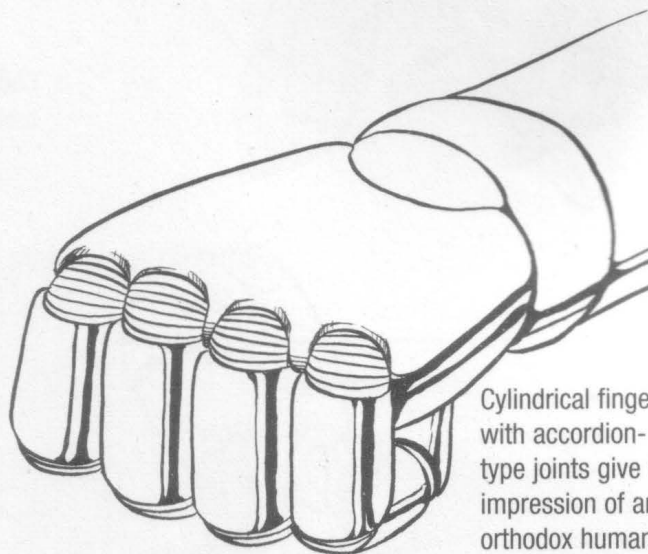


Cylindrical base with enlarged joints

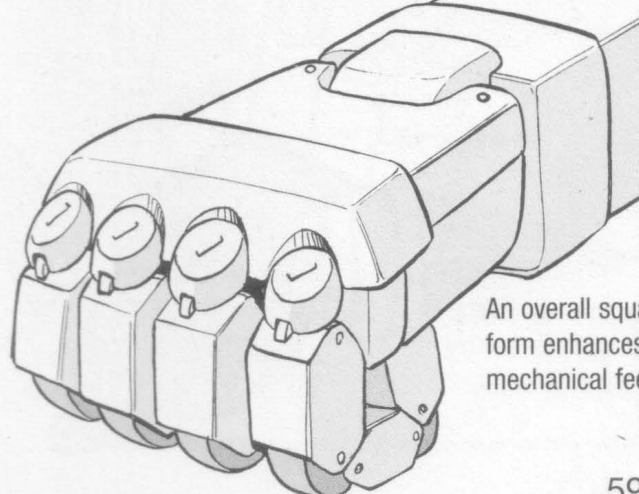
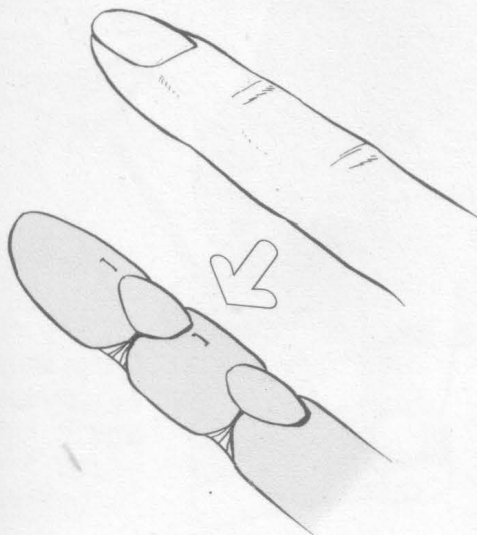


Conical cone type

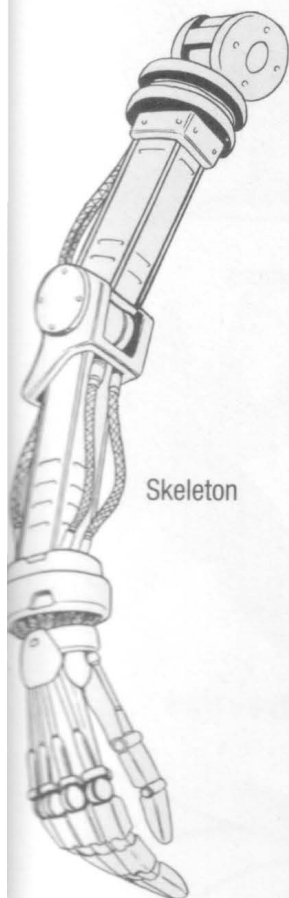
Cylindrical and square types



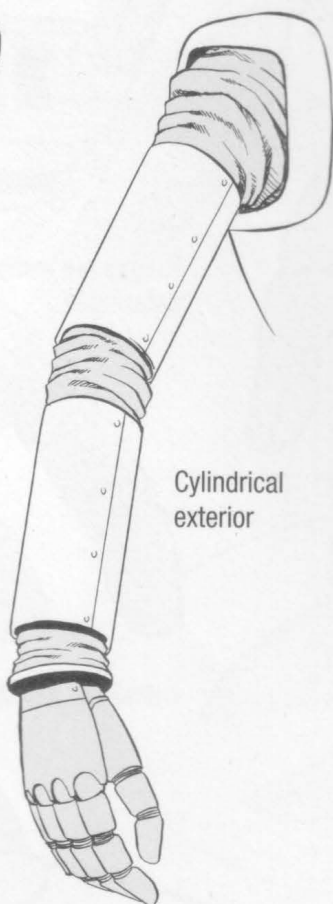
Cylindrical fingers with accordion-type joints give the impression of an orthodox human-type robot.



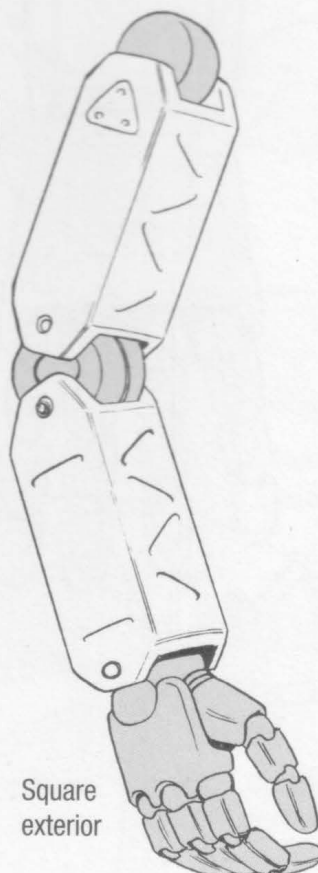
An overall square form enhances the mechanical feel.



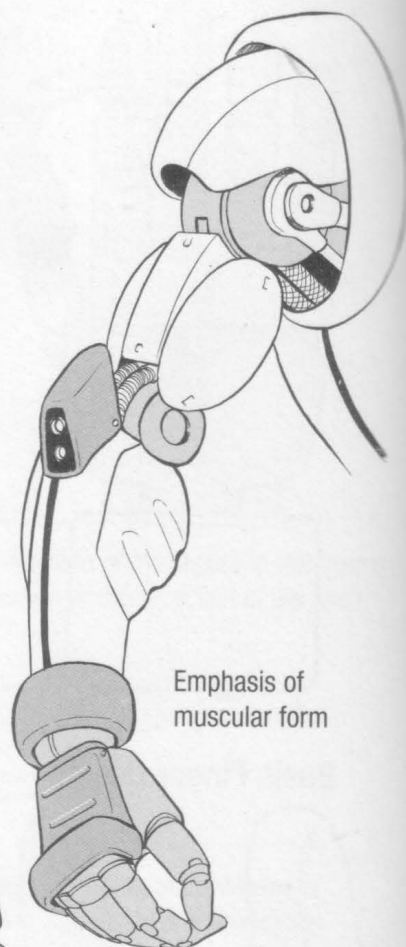
Skeleton



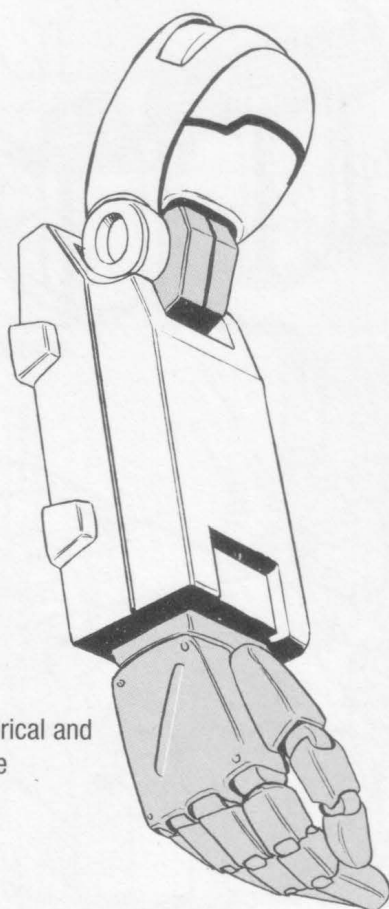
Cylindrical exterior



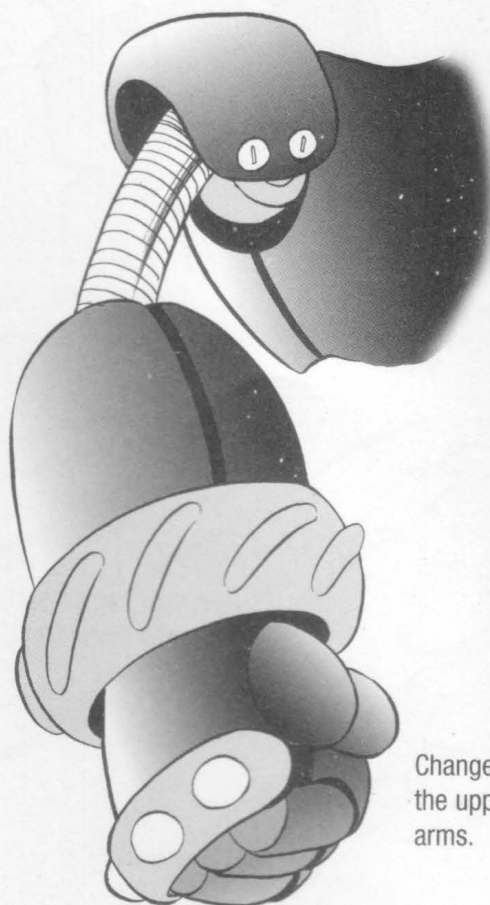
Square exterior



Emphasis of muscular form



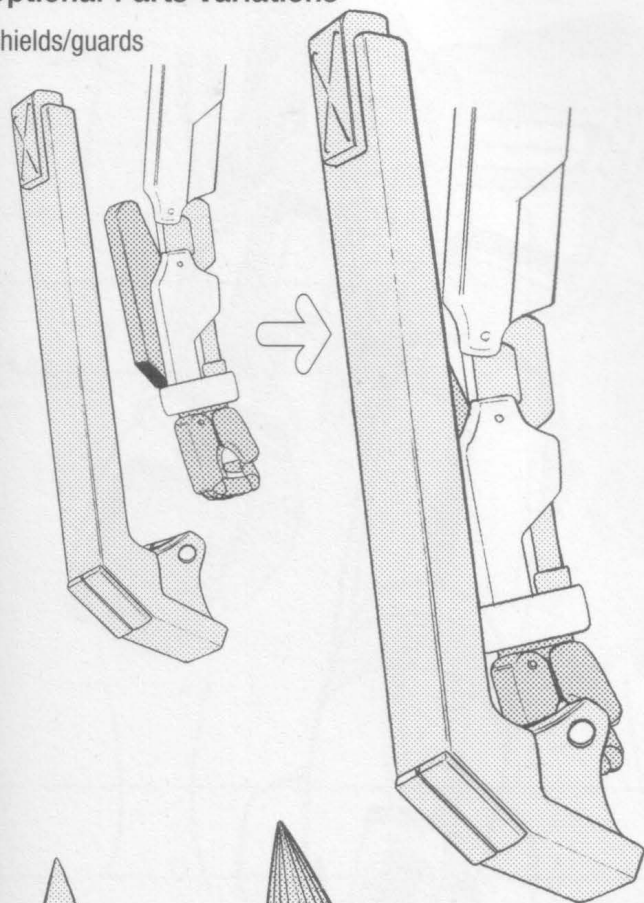
Cylindrical and square



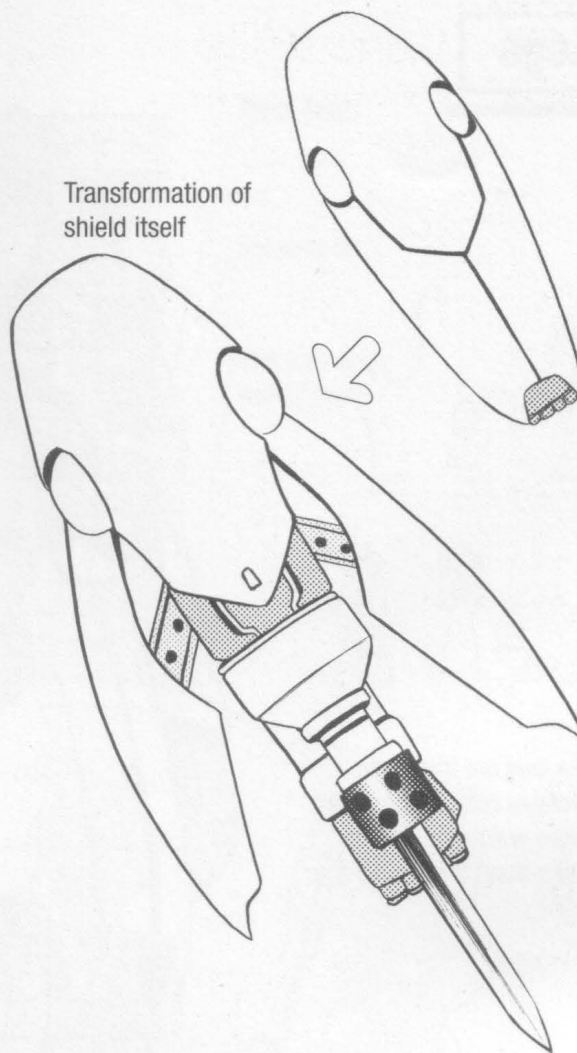
Change the girth of the upper and lower arms.

Optional Parts Variations

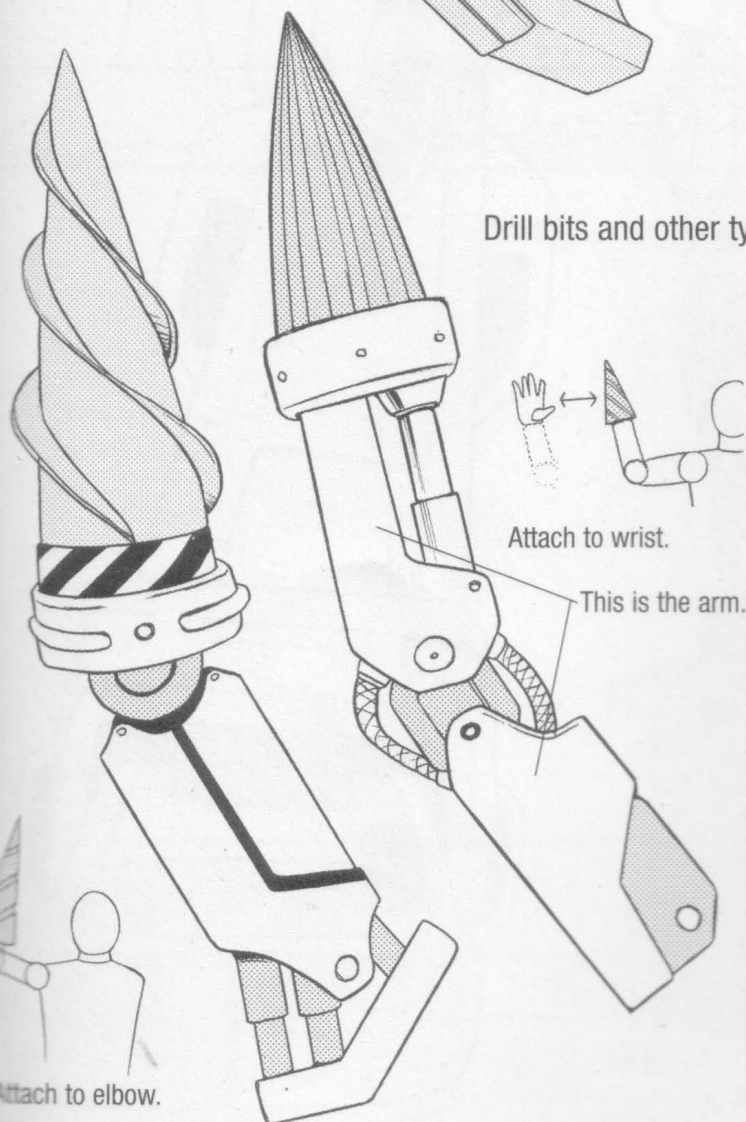
Shields/guards



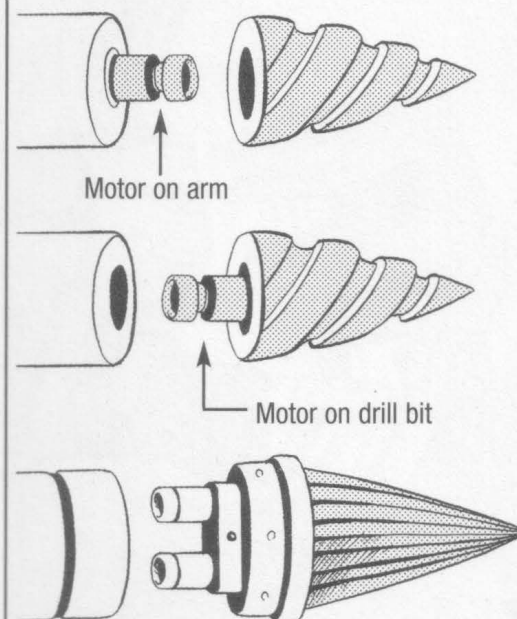
Transformation of shield itself



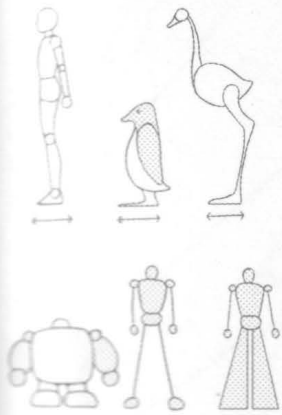
Drill bits and other types of arms



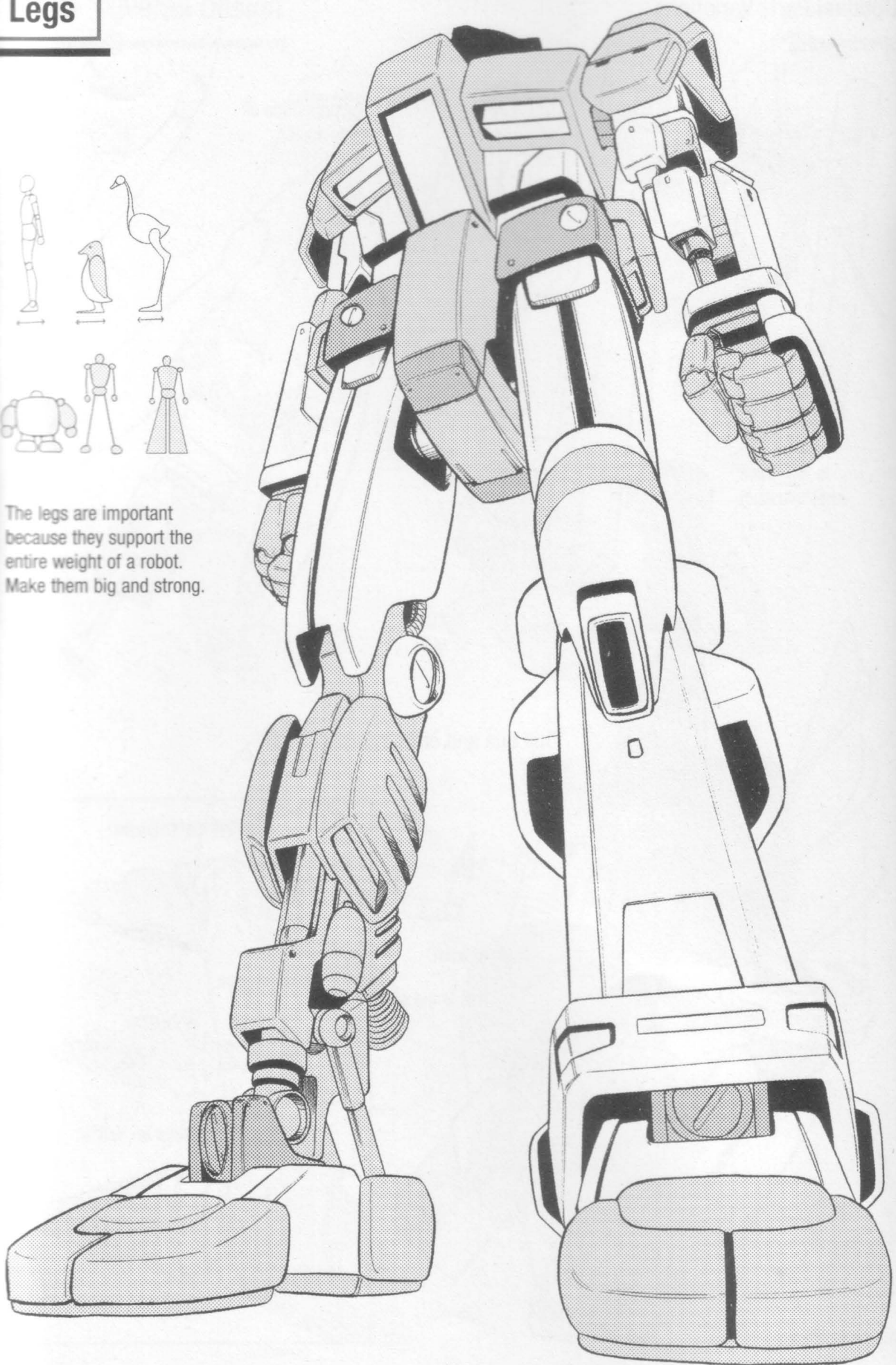
Joint variations



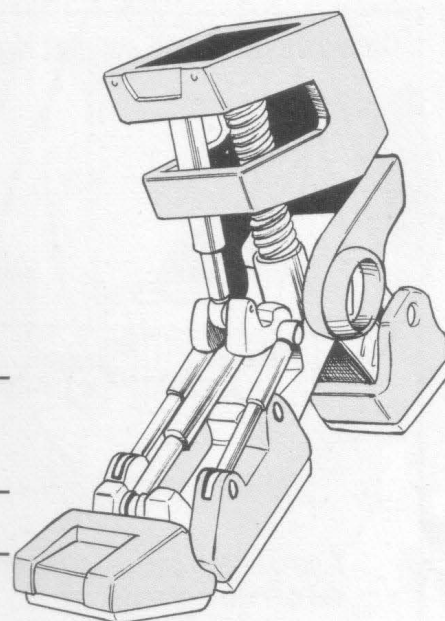
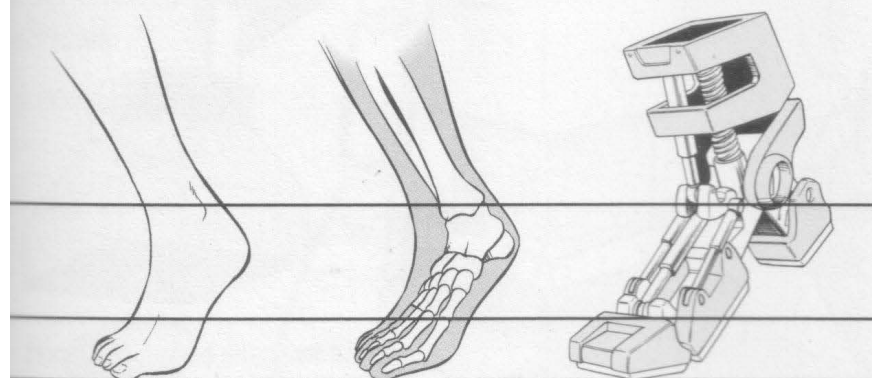
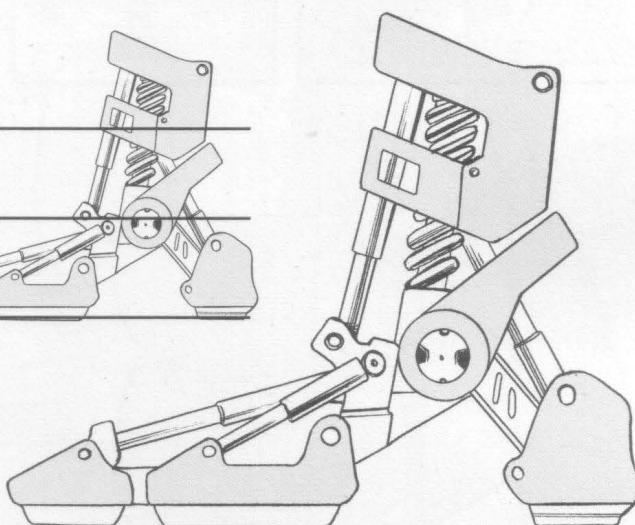
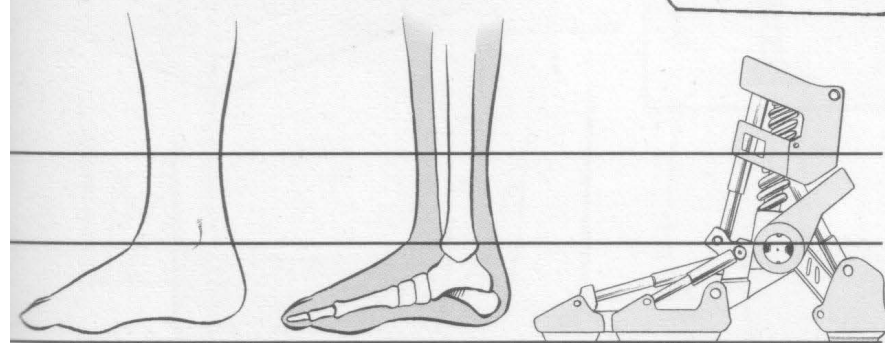
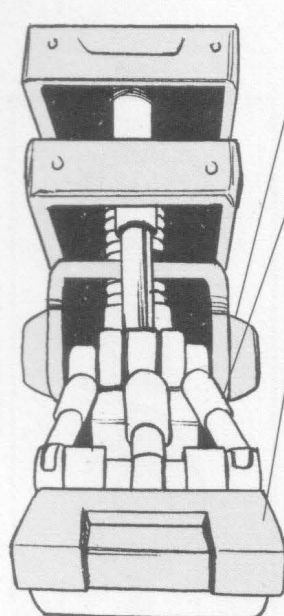
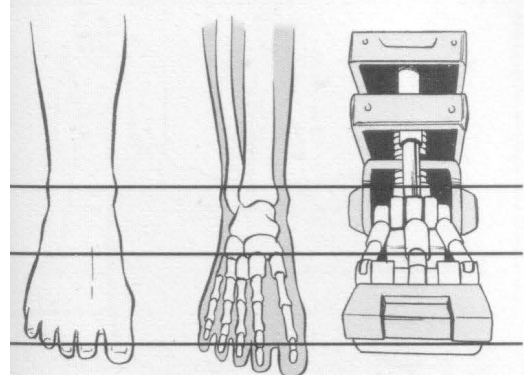
Legs



The legs are important because they support the entire weight of a robot. Make them big and strong.

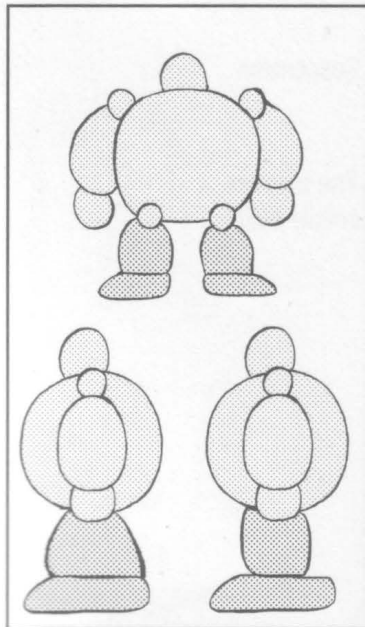


Feet

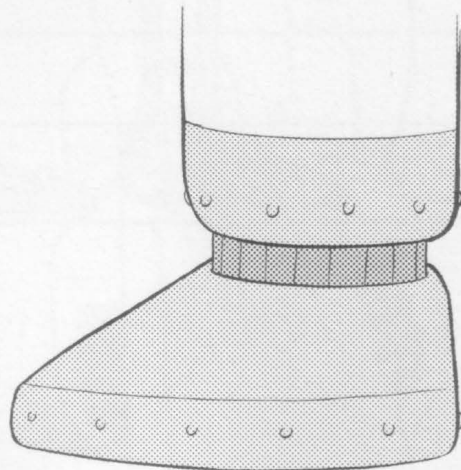
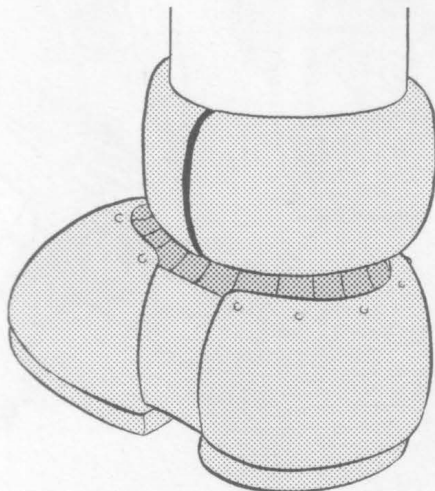
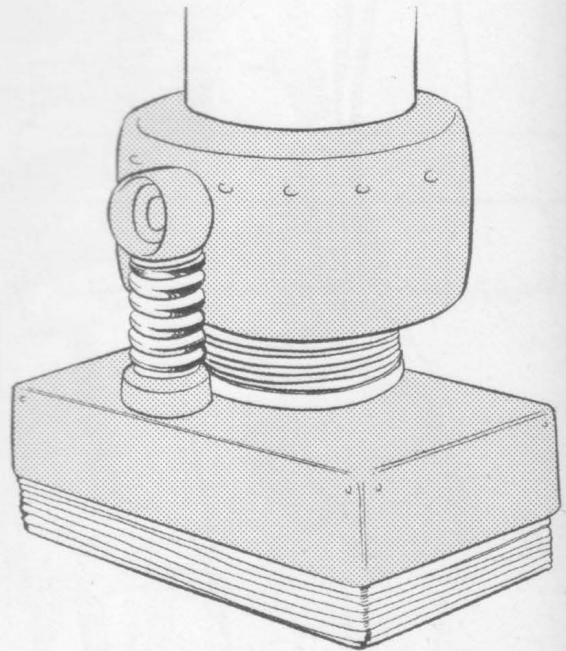
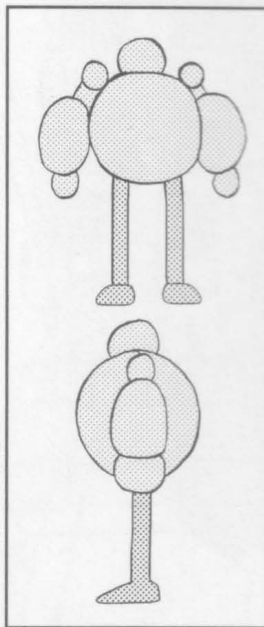


Short, Fat Legs Stocky legs create a sense of stability.

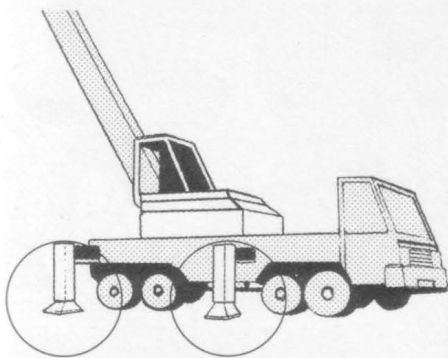
Good



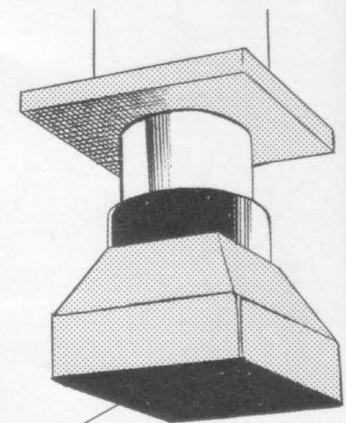
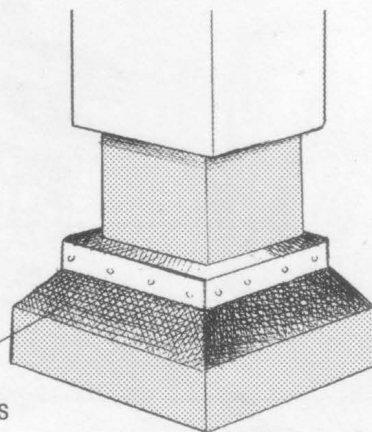
Bad



Optional crane-type support legs

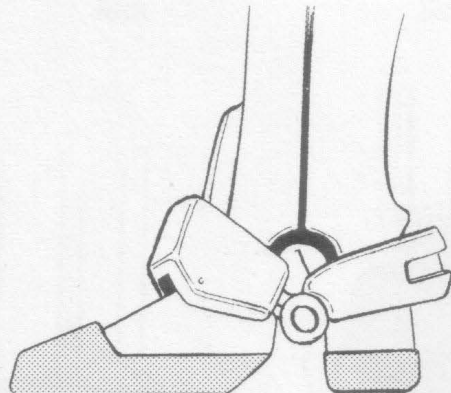
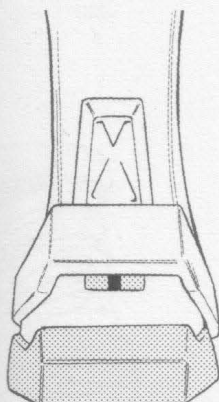
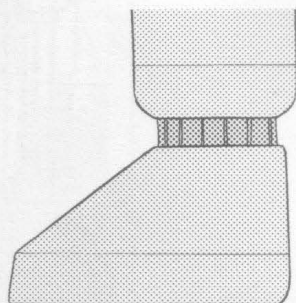
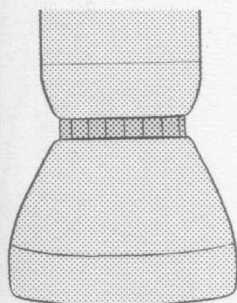
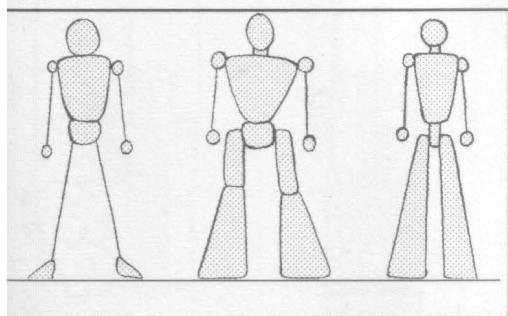


A combination of mesh and matting creates the dull shine of metal.

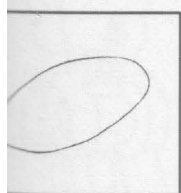


Drawing the bottom of support legs solid black makes them look heavy and hard.

Long, Slender Legs Draw the legs and feet large so that they are shaped like those in the illustrations below.

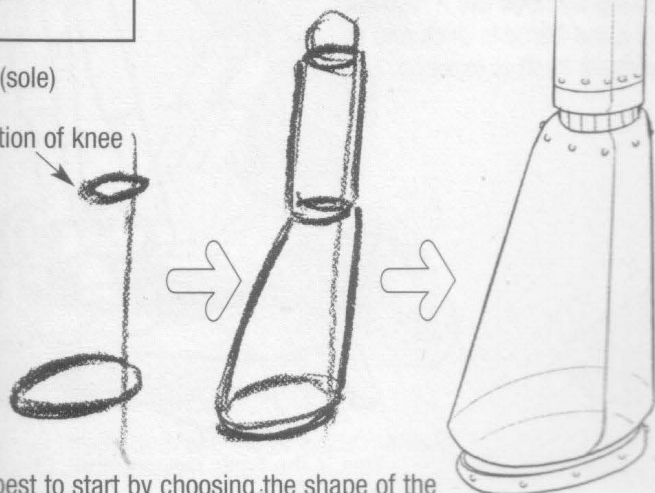


Leg Form

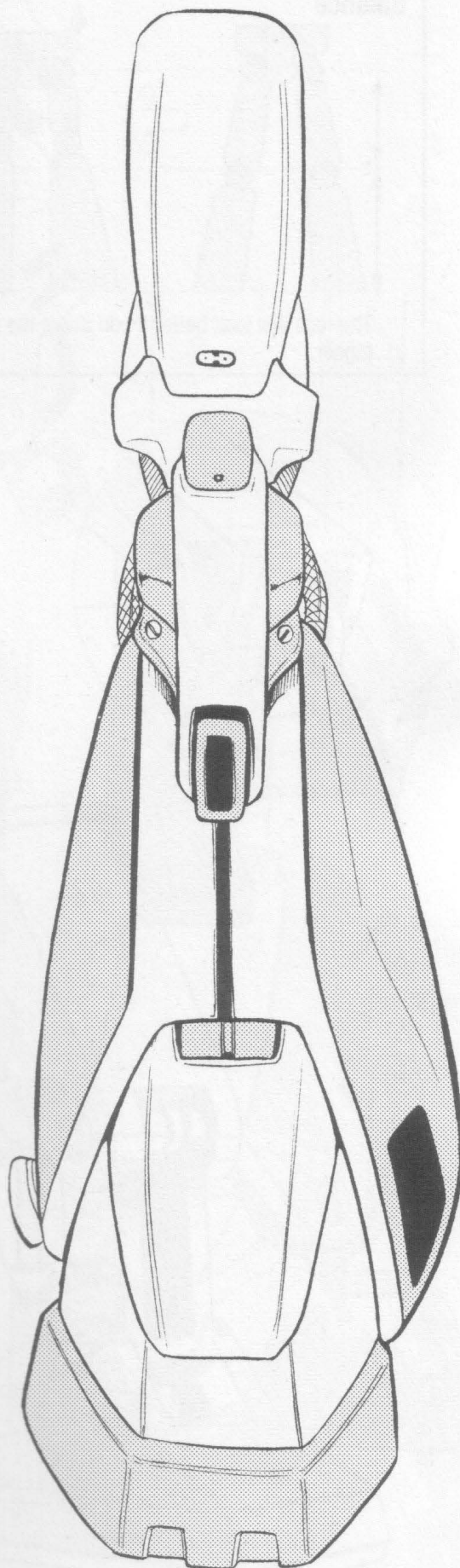


Foot (sole)

Location of knee

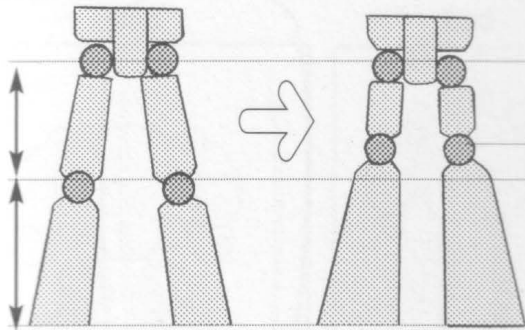


It is best to start by choosing the shape of the foot (sole) and drawing the entire leg by connecting the foot to the knee and hip joint.

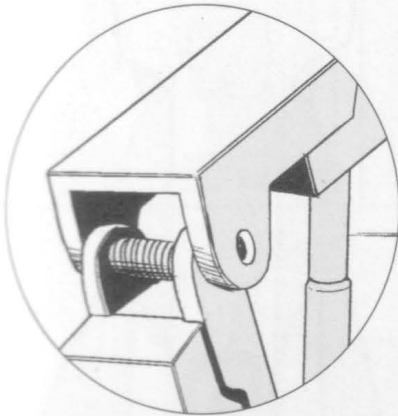


Leg Design

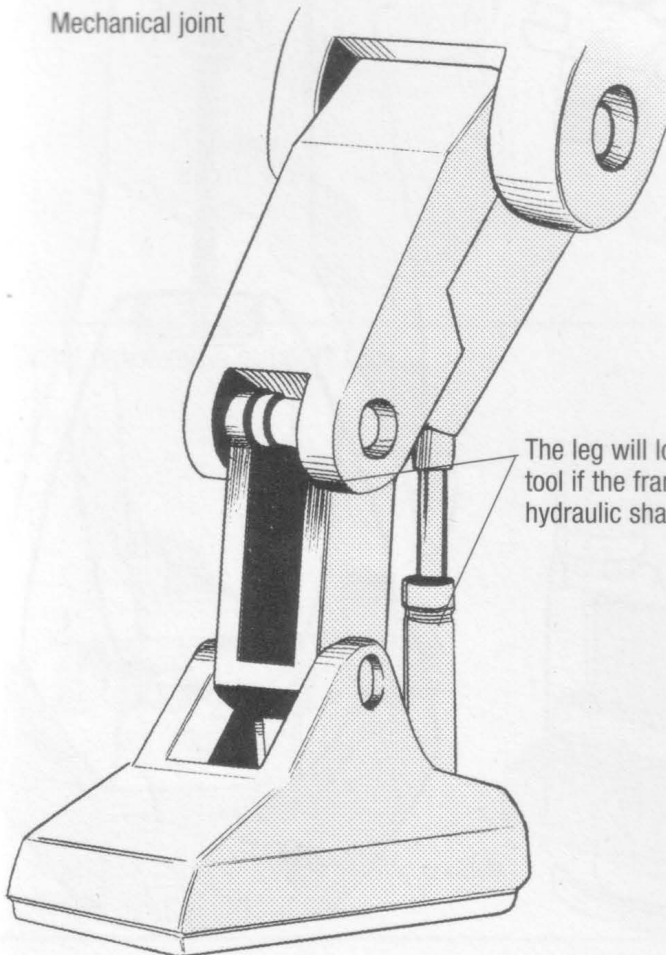
Balance



The legs will look better if you make the knees higher.

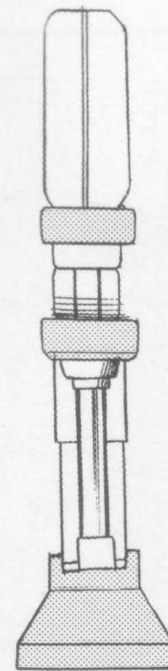


Mechanical joint

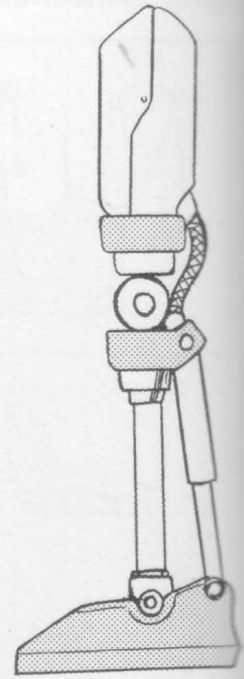


The leg will look like a high-tech tool if the frame is thick and a hydraulic shaft is exposed.

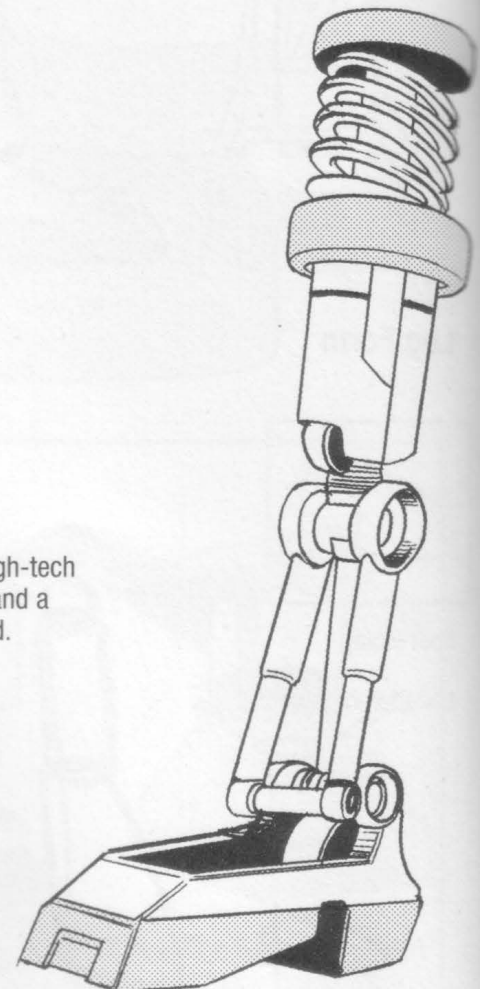
Skeleton frame



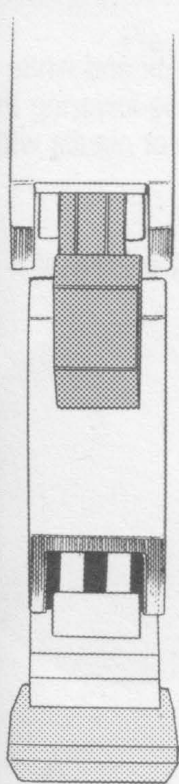
Front view



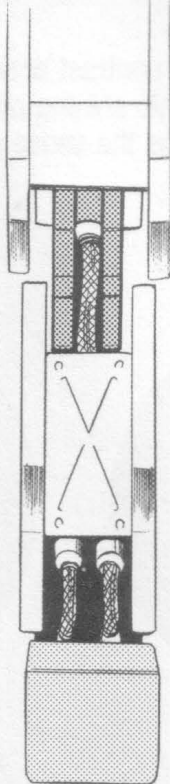
Side view



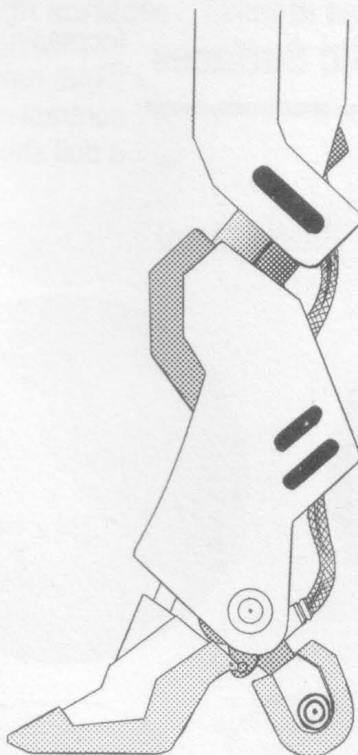
This is the basic leg structure. Choose the girth and the number and positions of shafts according to your tastes and how the robot will be used.



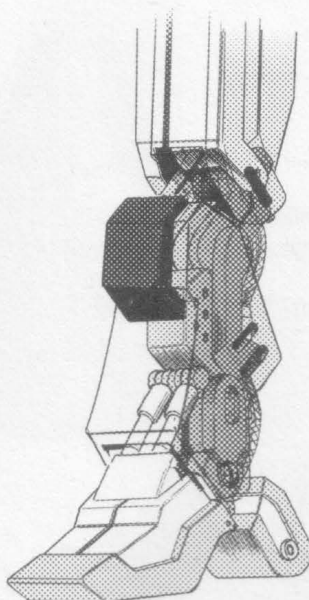
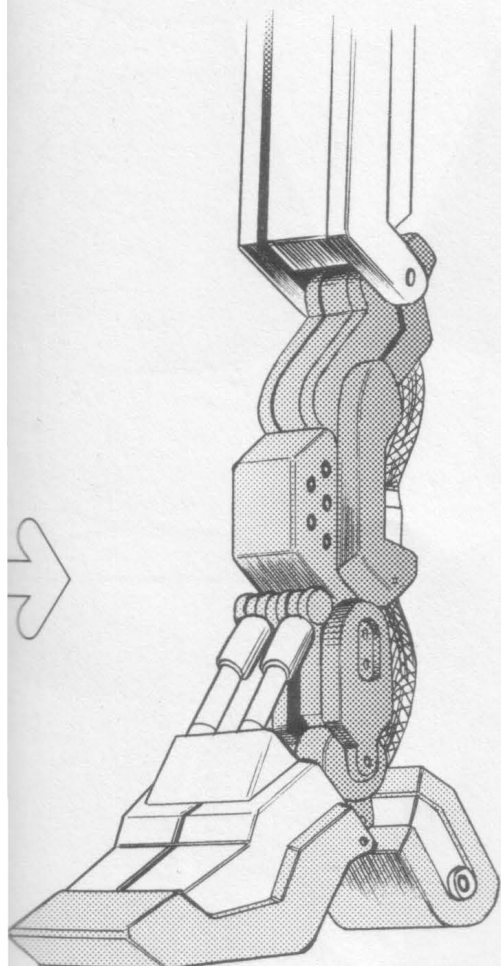
Front



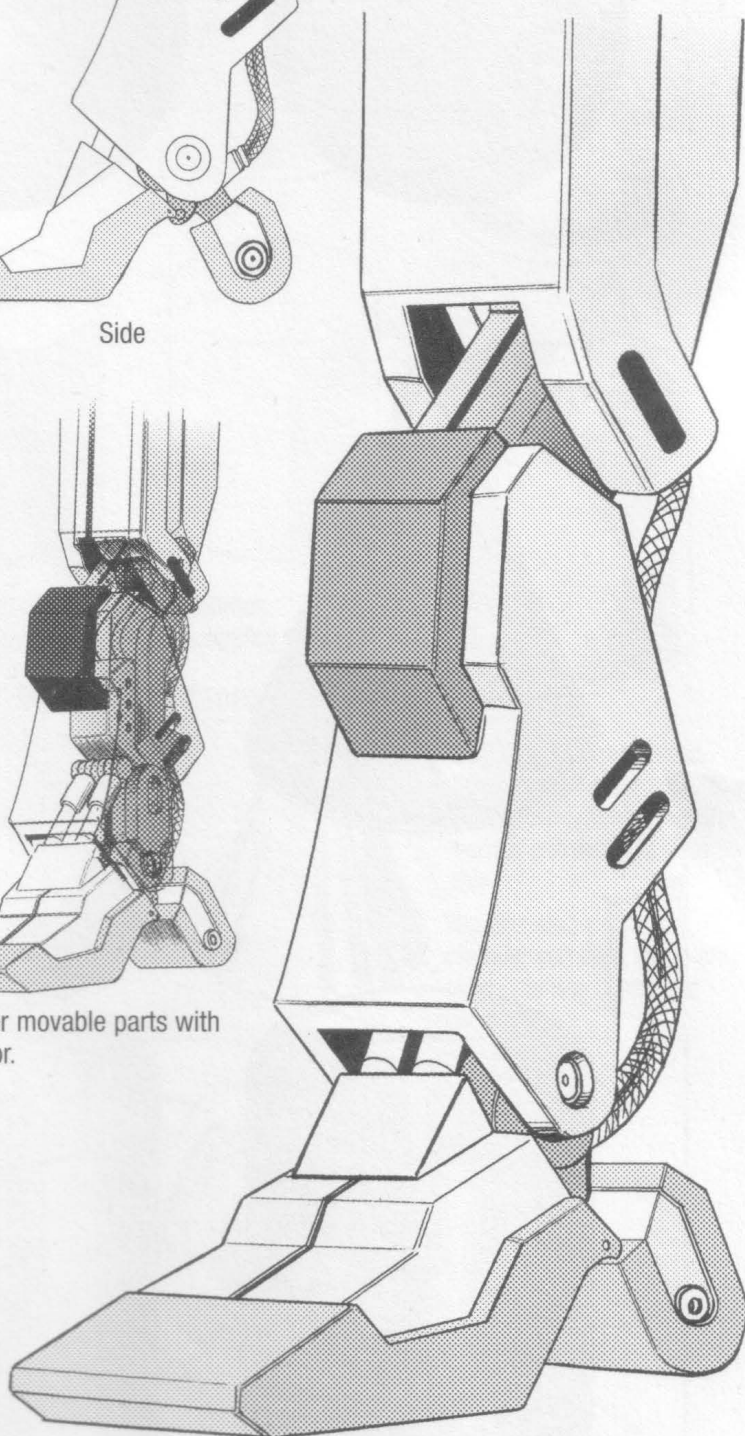
Back



Side



Cover movable parts with armor.



Internal structure: Make minor adjustments to the angle and position of shafts. Add supplemental parts to create the effect of a mechanical interior.

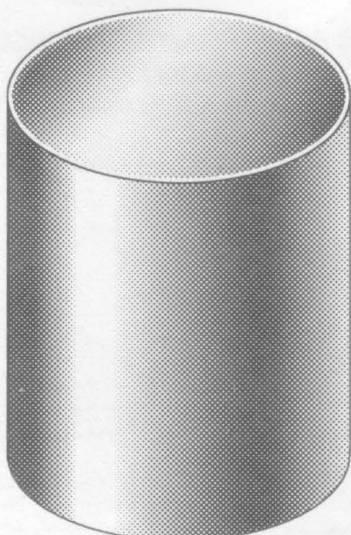
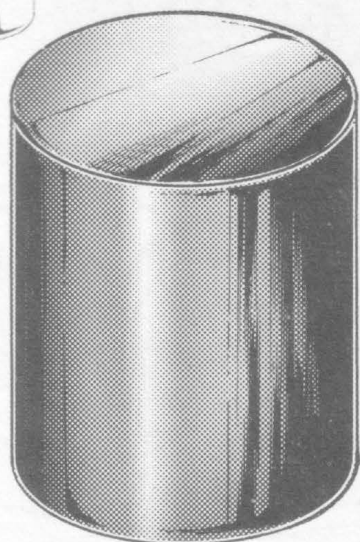
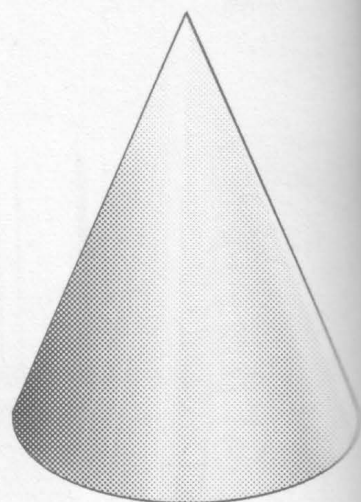
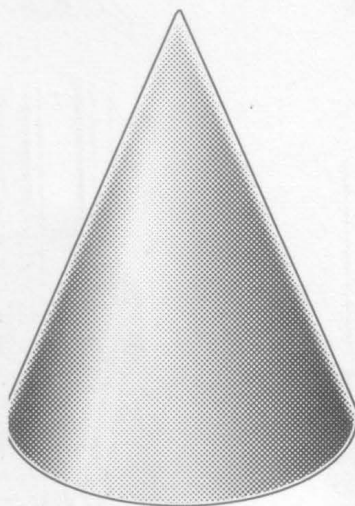
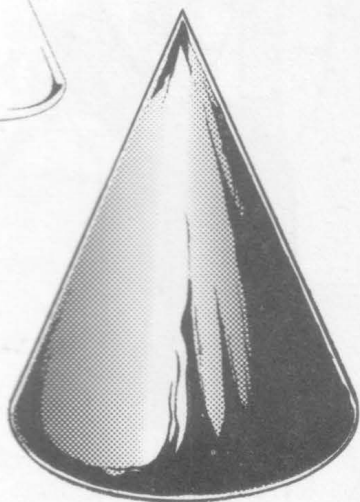
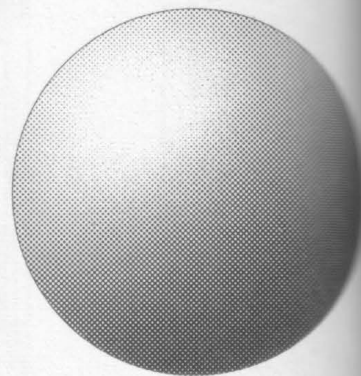
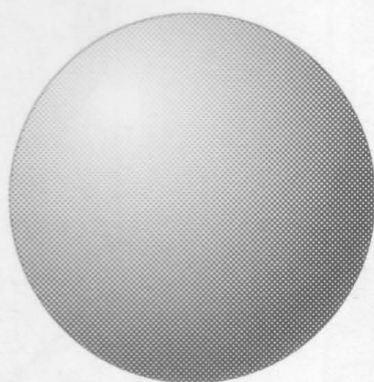
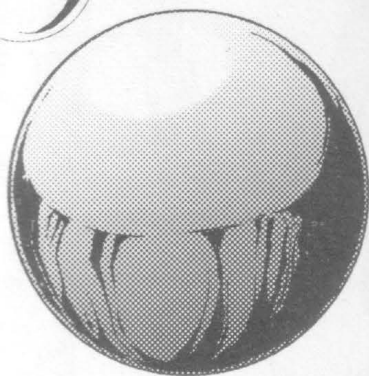
Representation of Metallic Surfaces

Increasing the contrast between black and white (light) represents shining metal, while lowering the contrast creates the sense of metal or plastic with a dull shine.

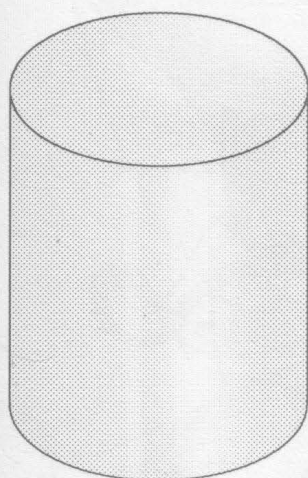
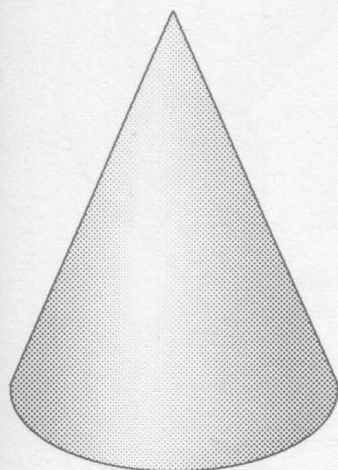
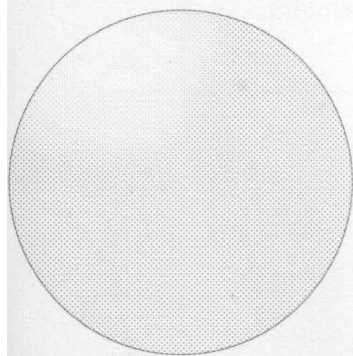


Glossy Metal

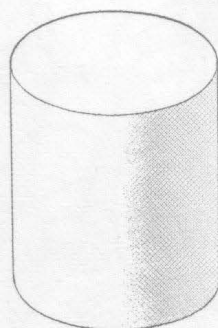
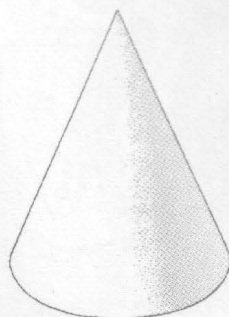
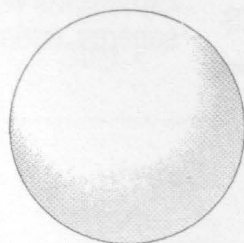
Matted Metal



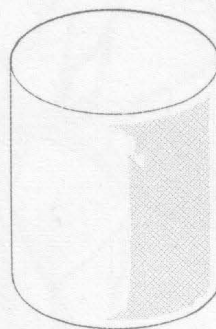
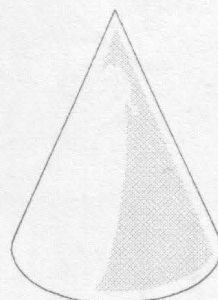
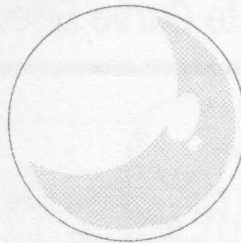
Plastic



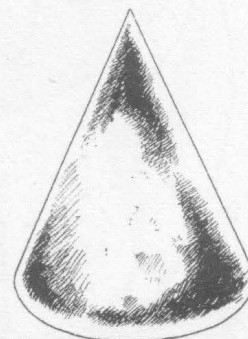
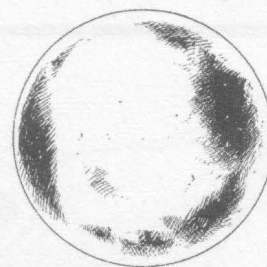
Rough surfaces



Smooth surfaces

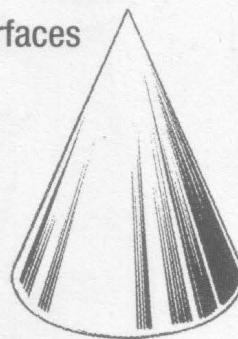
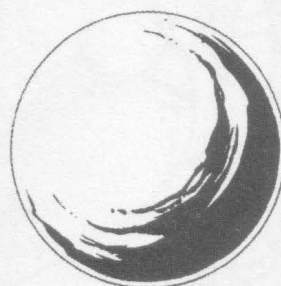


Rusted/Worn metal



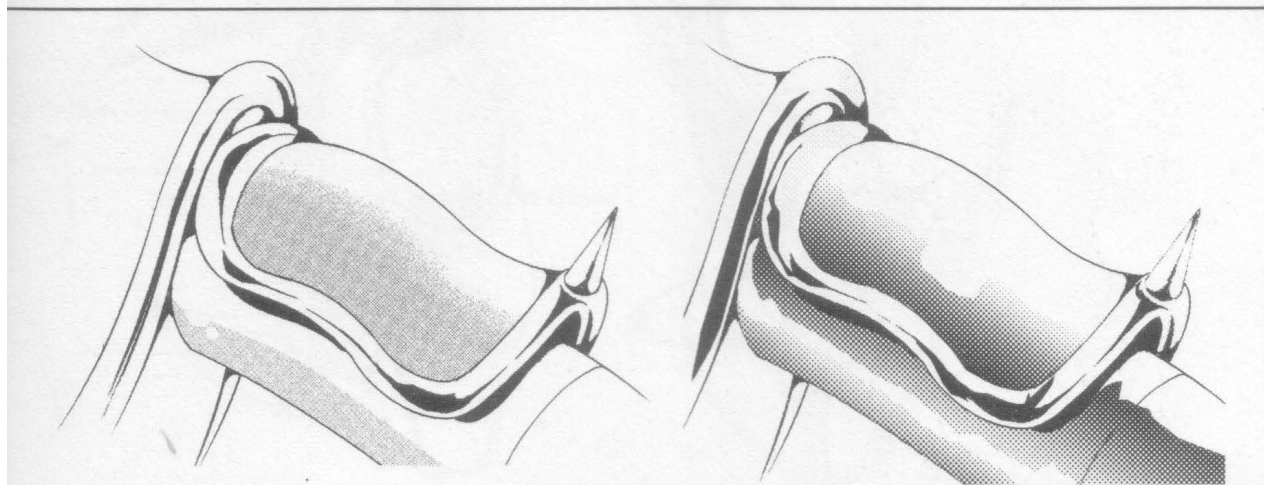
The feel of a solid is sometimes expressed by shaving or clipping tones.

Metallic Surfaces



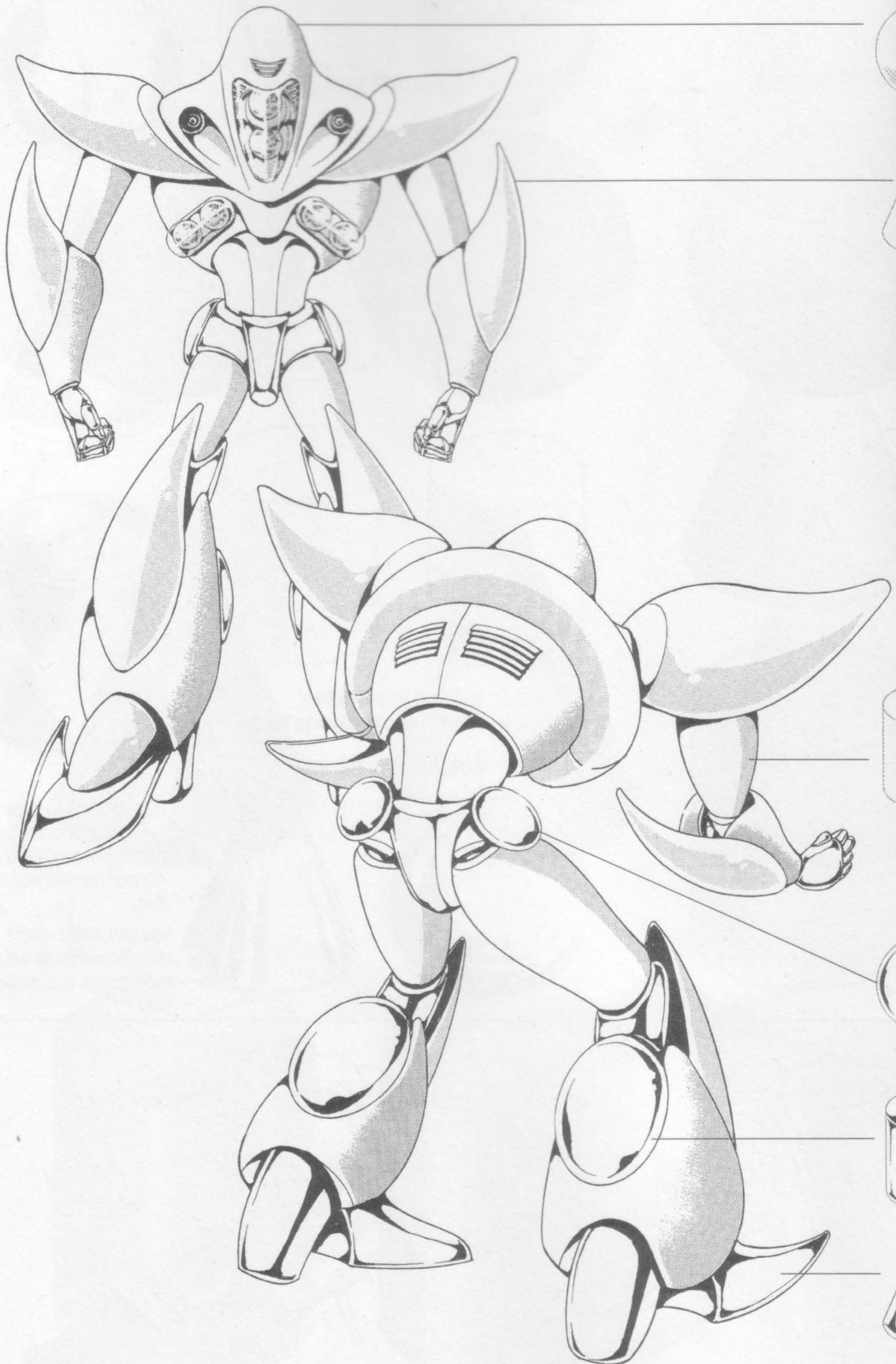
Use spotting to express grime and a worn look. You can apply gradation and/or normal mesh tones over this.

You can also express metallic surfaces using only solid colors and straight lines.

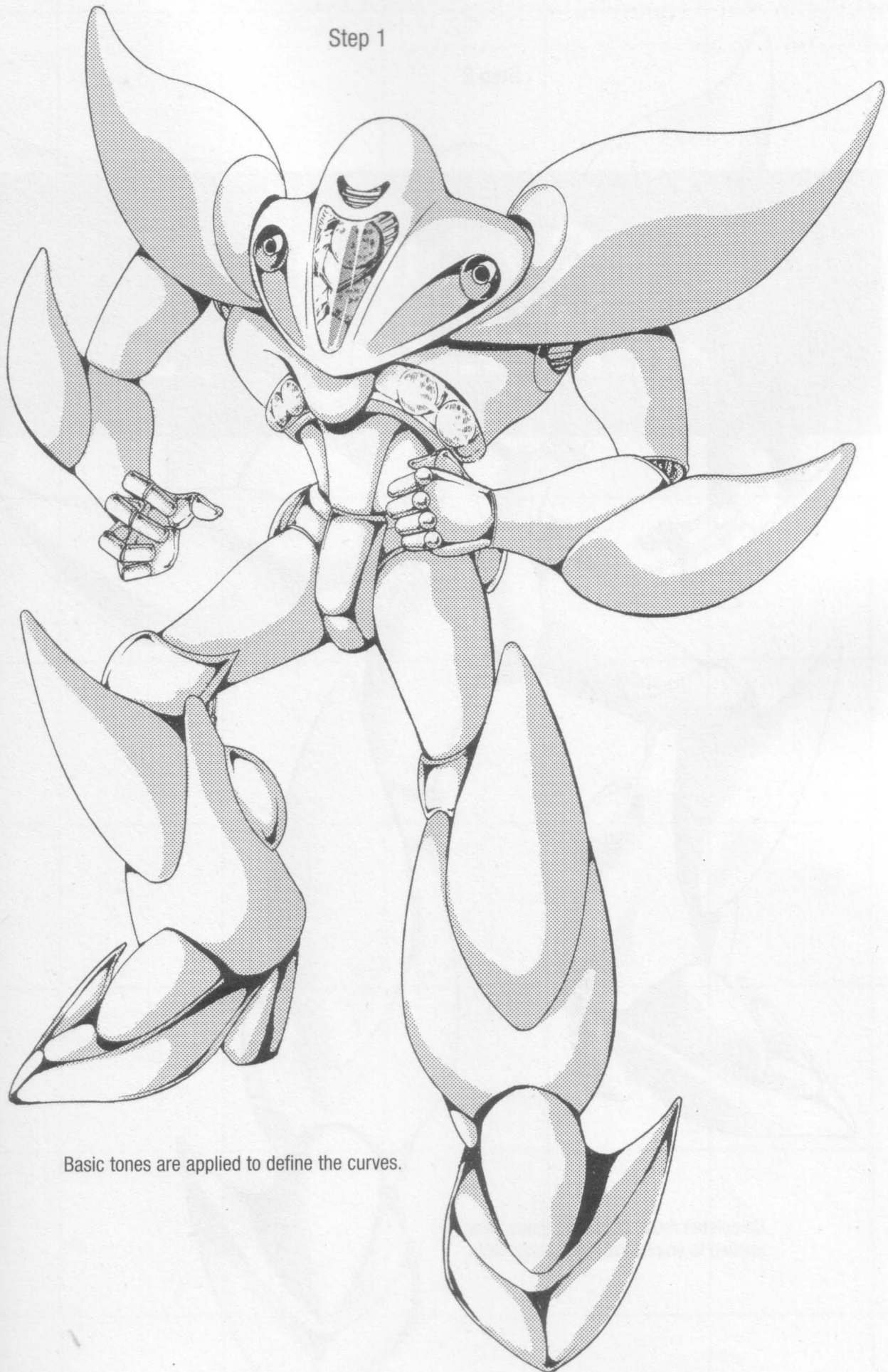


Using Tones to Create Curve Effects

Express curve lines by using a combination of spheres, cones and cylinders.



Step 1



Basic tones are applied to define the curves.

Step 2



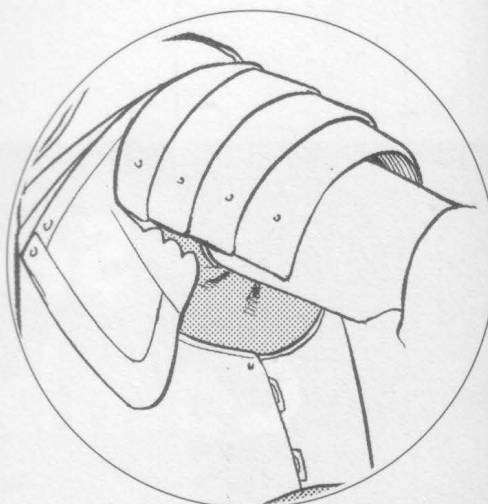
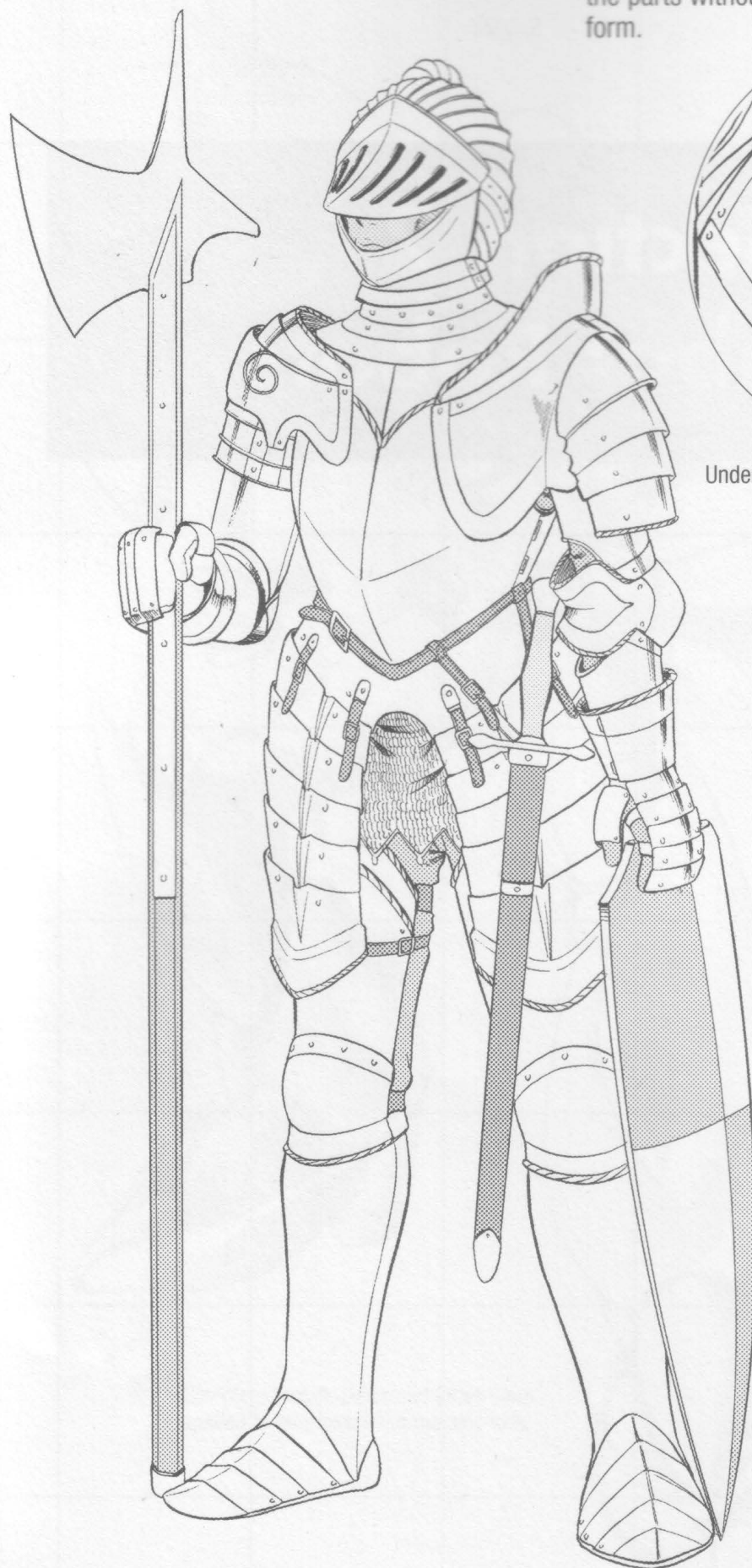
Completed robot. Deformed tones were applied to emphasize the metallic look.

Section 2

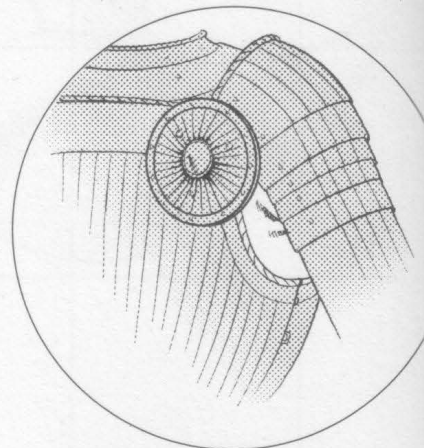
Combat Robots

Design Based on Medieval Armor

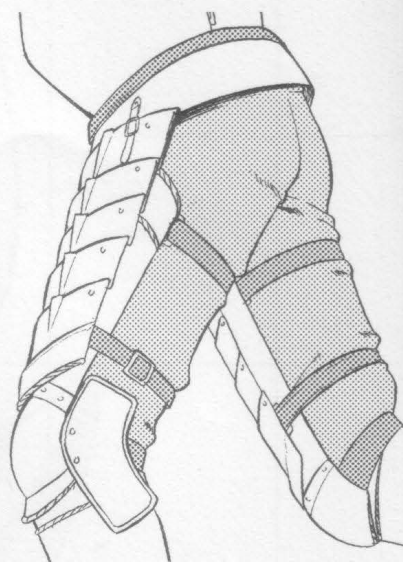
A classic suit of armor can be rendered into a modern-day mecha by simplifying and deforming the parts without significantly altering the overall form.



Underarm and seam of sleeveless undergarment



Different version of shoulder pad and sleeveless undergarment



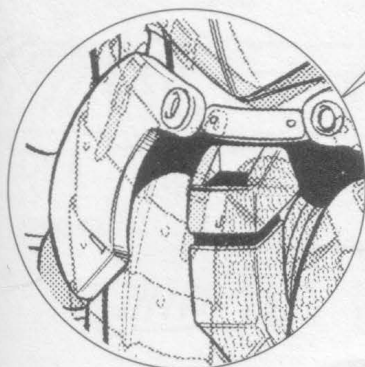
Thigh protectors and knee pads

Use the helmet lines to form the head.

Emphasize sturdiness by extending and thickening the shoulders.



Make joints movable.



Combine belts into a single belt.

Turn elbow pads into jets.

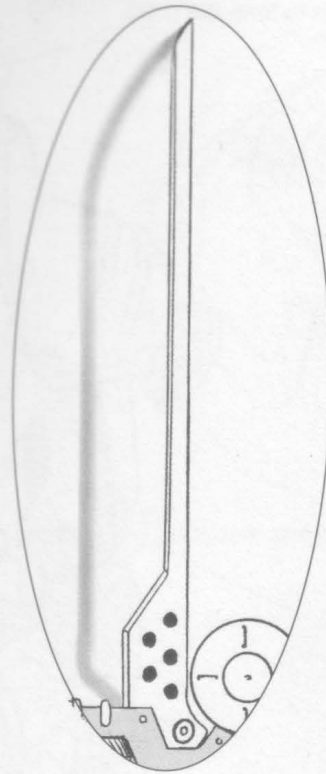
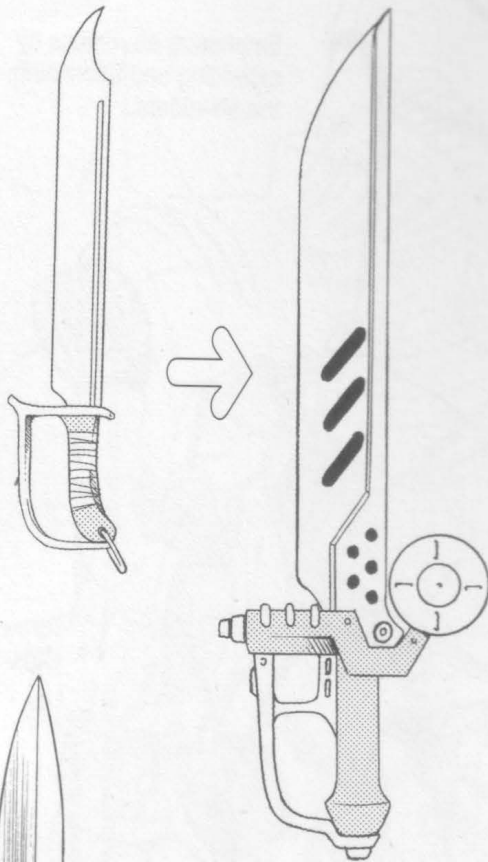
Leave the original lines in place.

Create three-dimensional effects (thickness and hardness) by adding lines such as these.

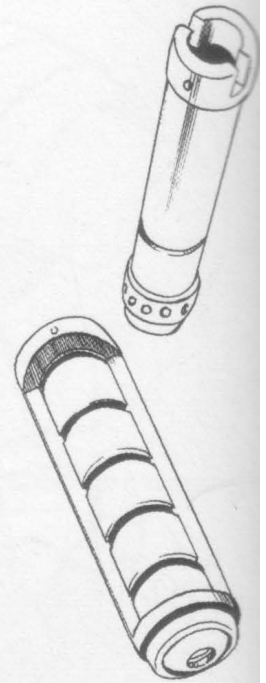
Feet should be big and stable to make up for simplicity of foot lines.

Arrangement of Swords, Axes and Spears for Use with Robots

Classic weapons should retain their original overall form but feature minor modifications to make them look futuristic.

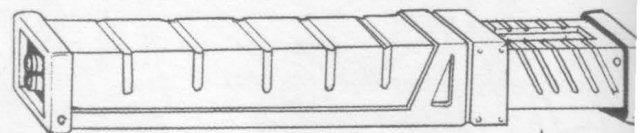


Applying tones to a blade and planing will make it look like a laser blade.



Making the handle look like a metal shaft will give it a mechanical feel.

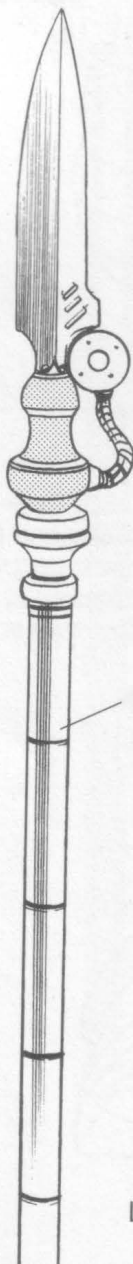
Beam saber



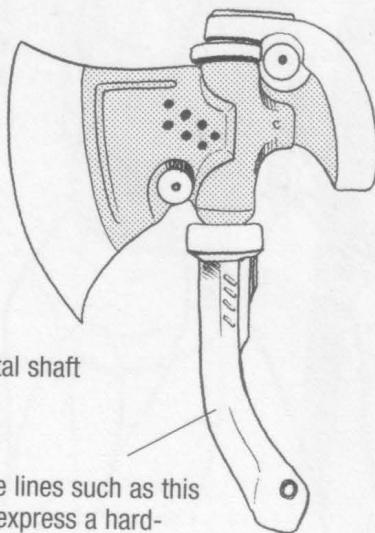
Energy pack



You can give beam sabers an optional energy pack.

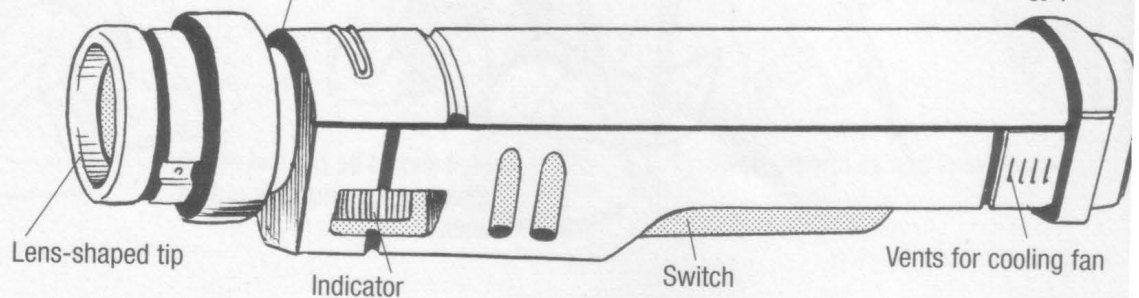


Metal shaft



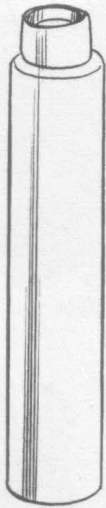
Use lines such as this to express a hard-plastic, three-dimensional effect.

Seam



**Small tools used to make a robot
look more mechanical**

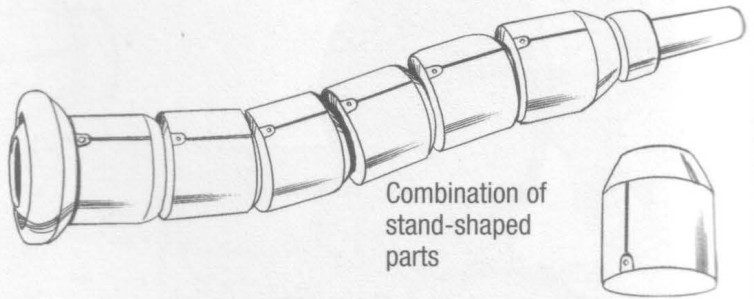
Shafts



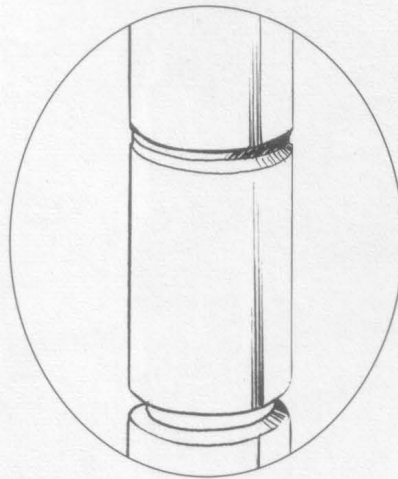
Plain type



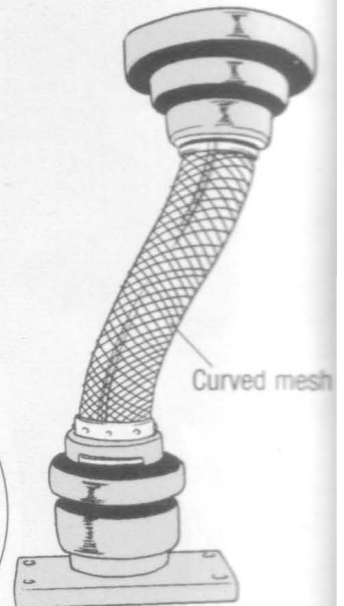
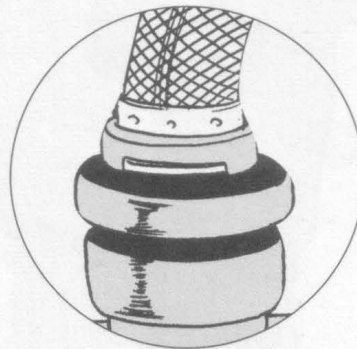
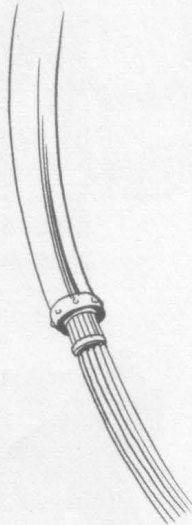
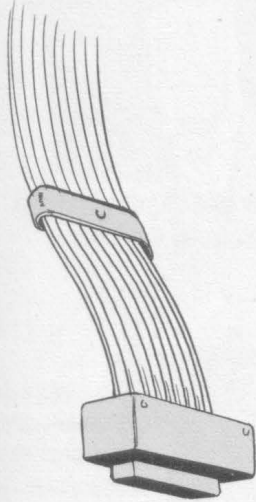
Type with
seams/grooves



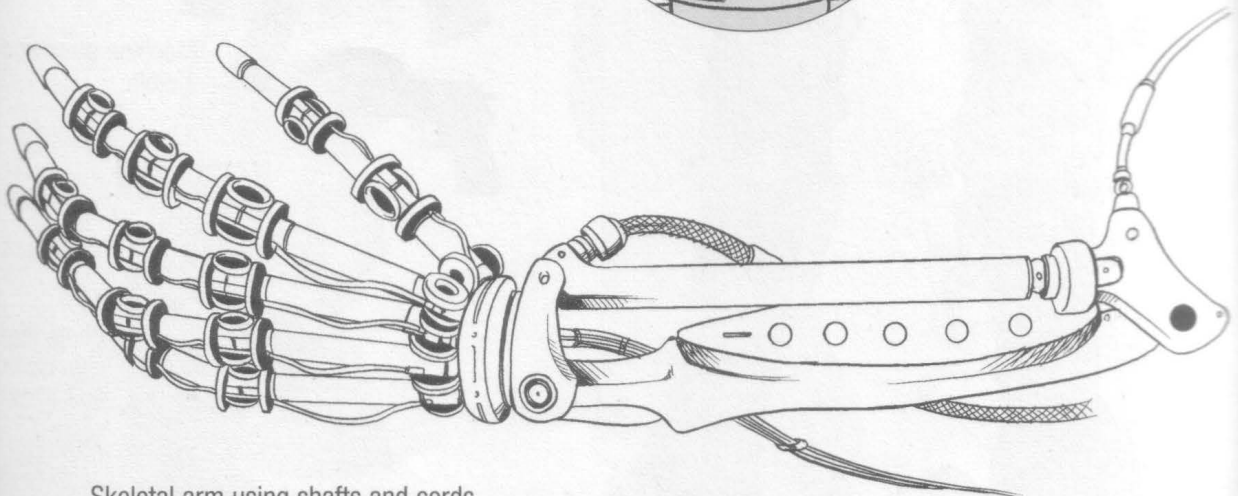
Combination of
stand-shaped
parts



Cords



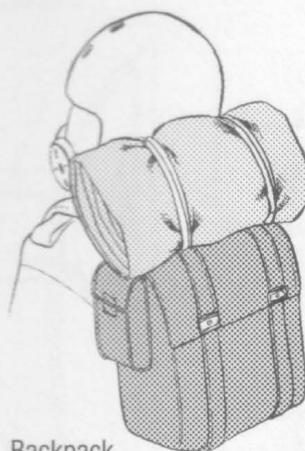
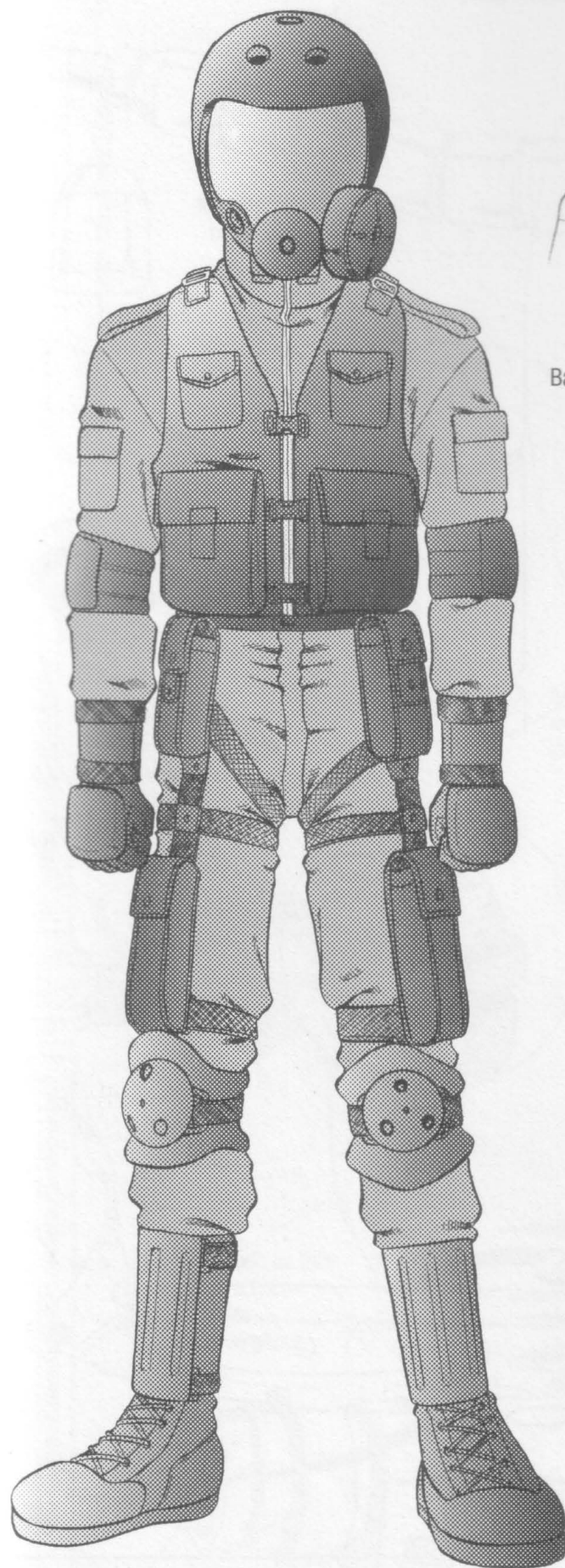
Curved mesh



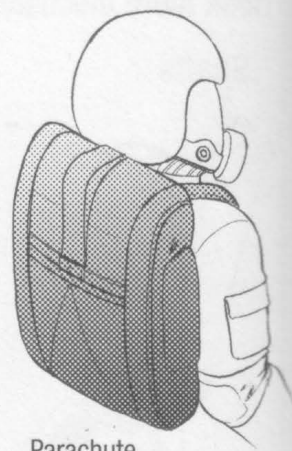
Skeletal arm using shafts and cords

Robots Based on Combat Uniforms

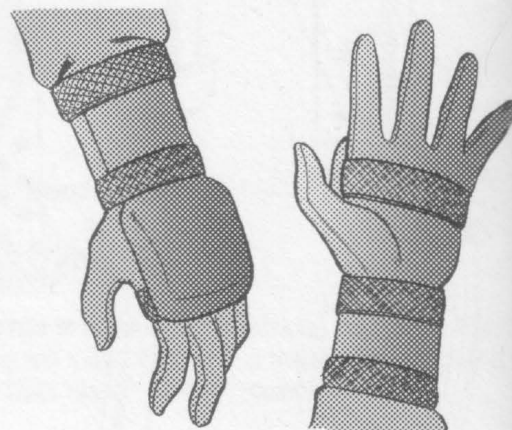
Special-forces style. Refer to space suits and diving suits.



Backpack



Parachute



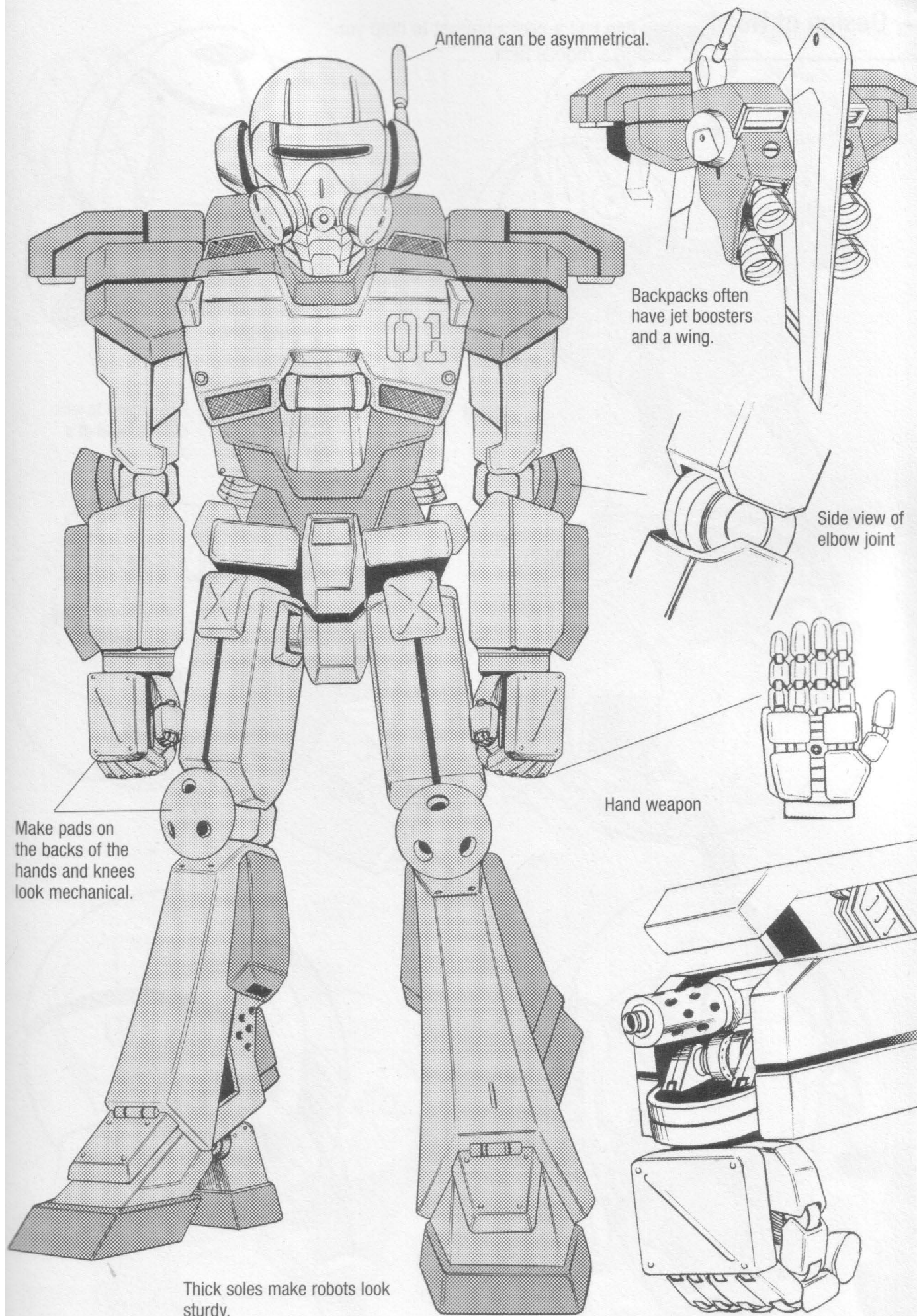
Gloves are thick and sturdy and have protective cushions on the back.



Machine guns and pistols



Boots feature shin guards and thick soles.



Antenna can be asymmetrical.

Backpacks often have jet boosters and a wing.

Side view of elbow joint

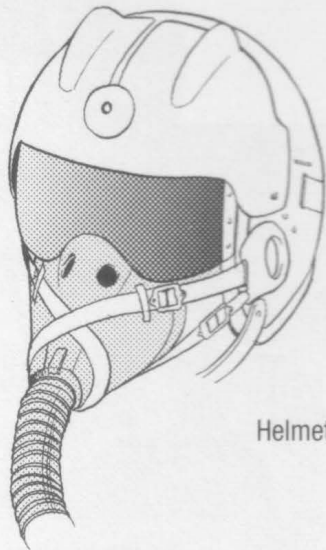
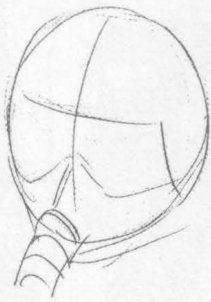
Hand weapon

Make pads on the backs of the hands and knees look mechanical.

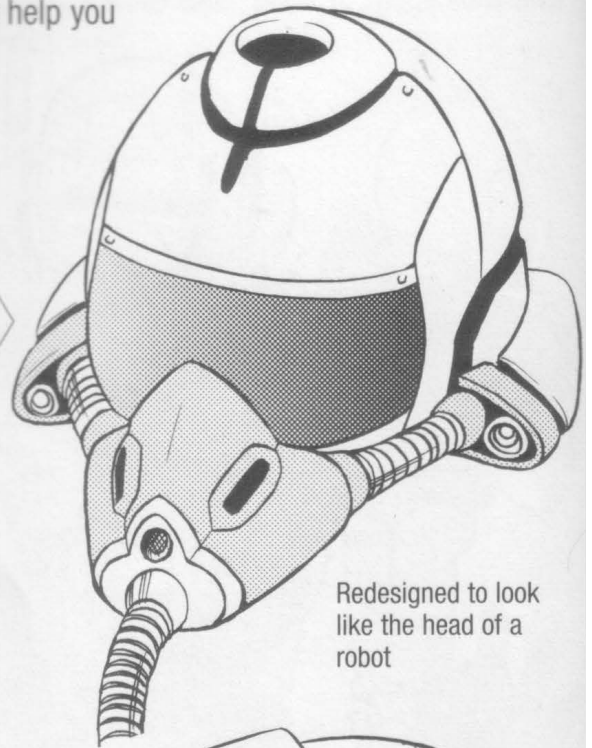
Thick soles make robots look sturdy.

Design of Head

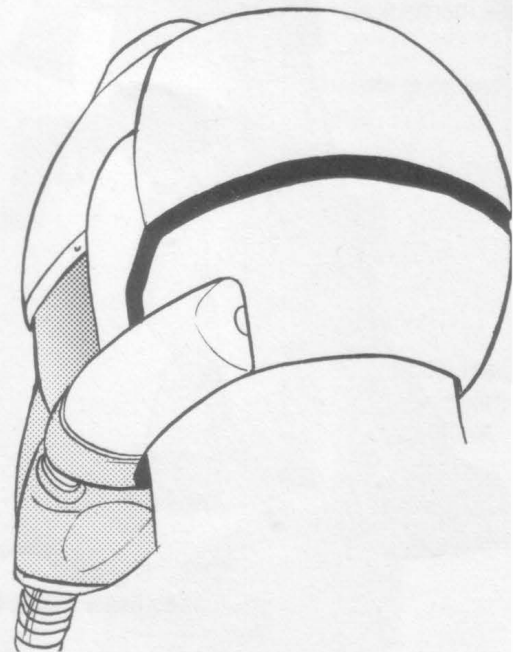
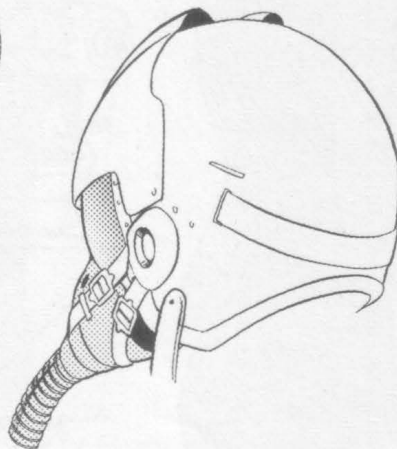
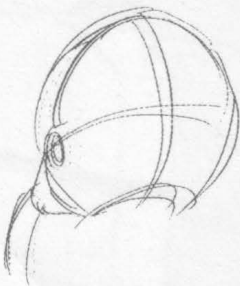
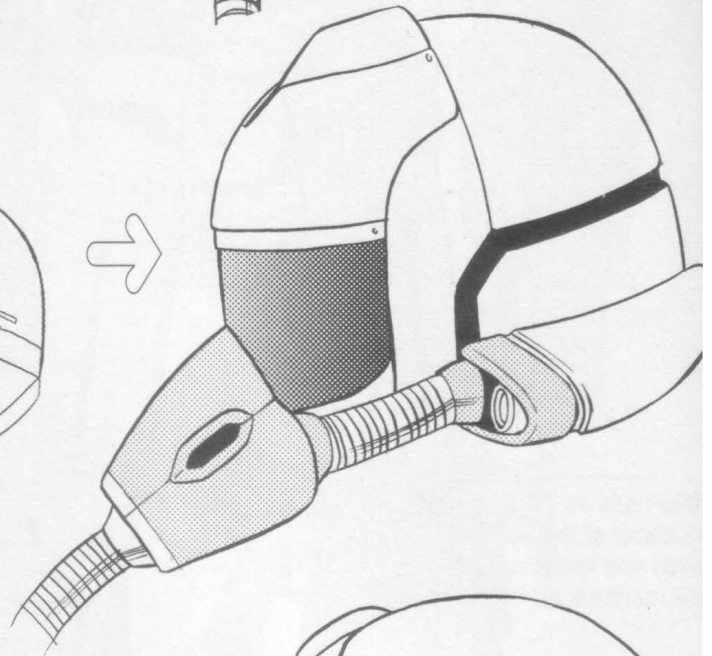
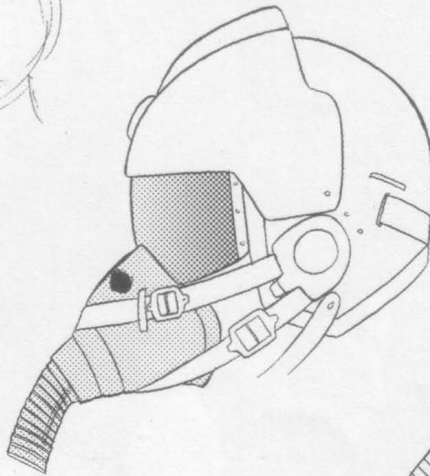
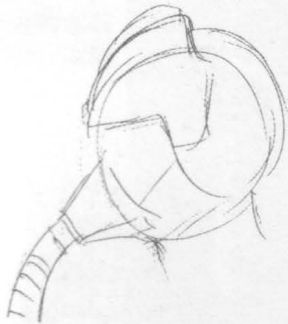
You can use a pilot's helmet to help you design a robot's face.

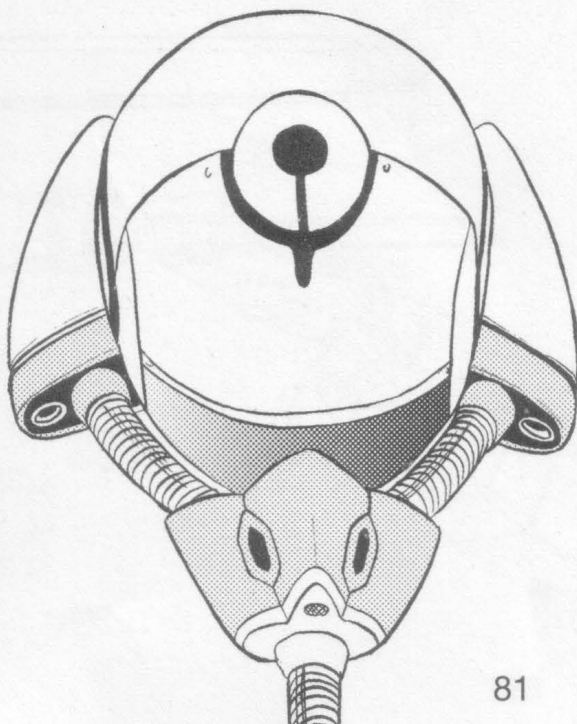
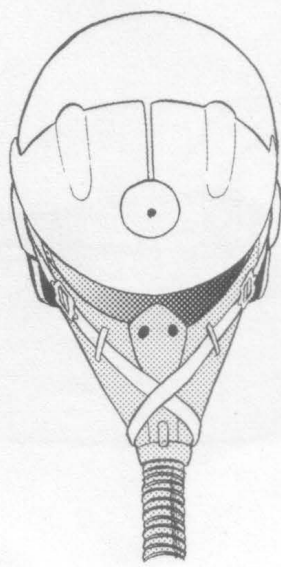
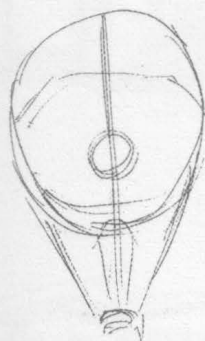
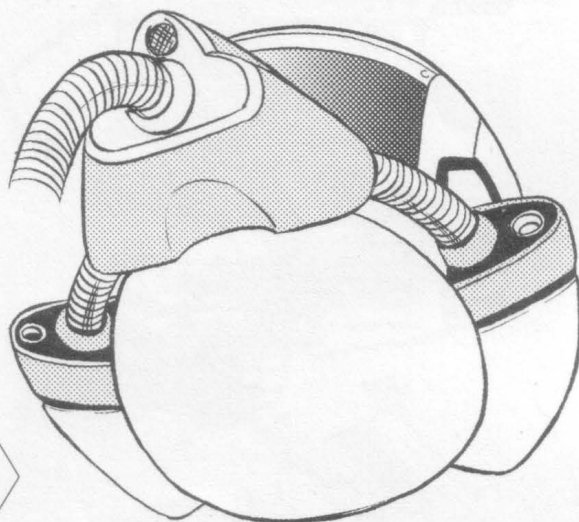
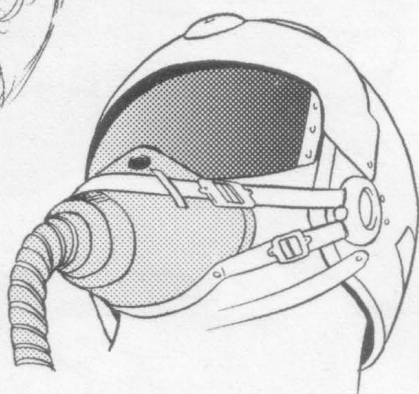
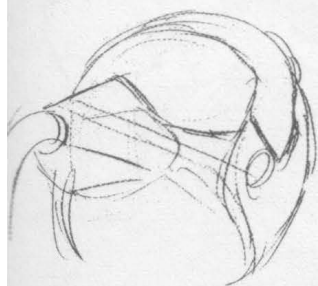
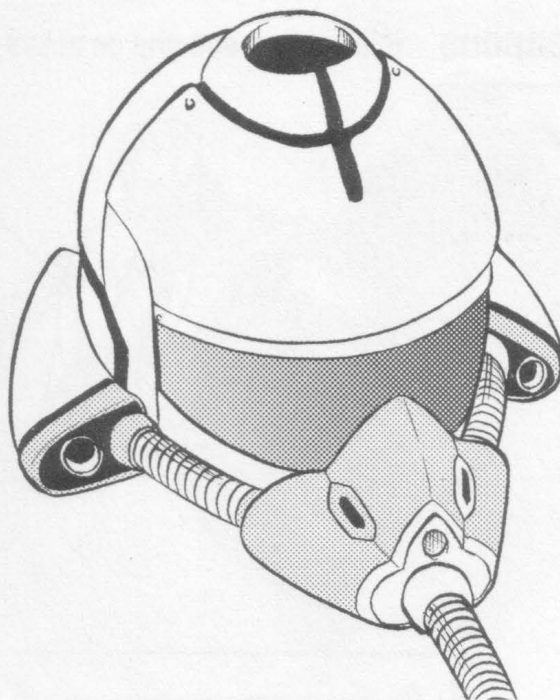
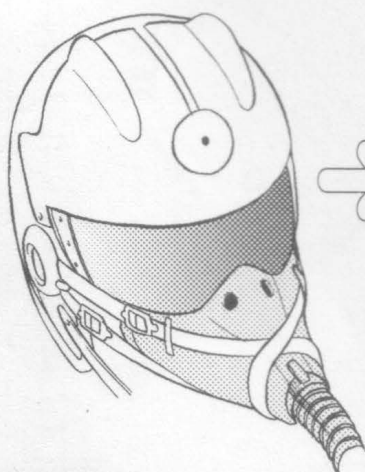


Helmet



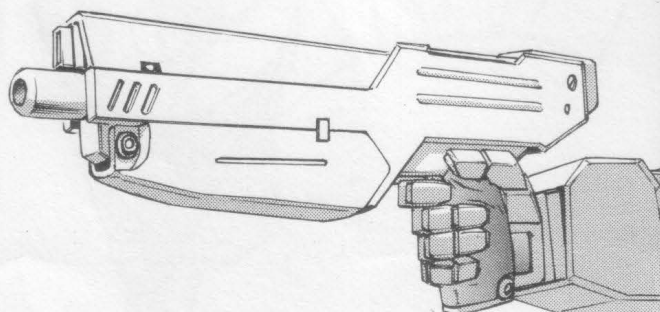
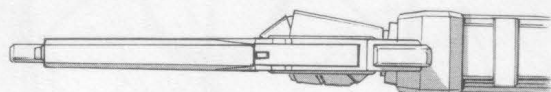
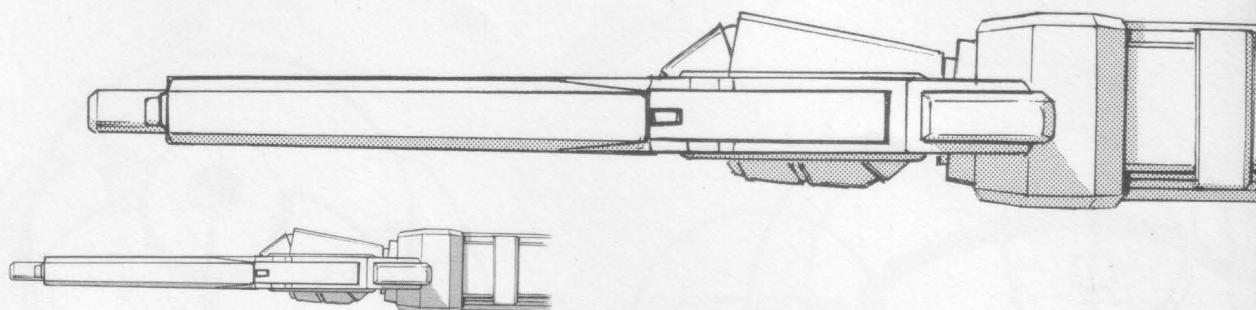
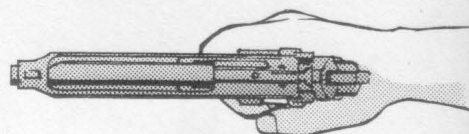
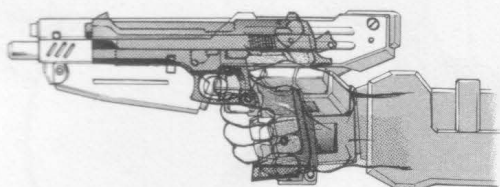
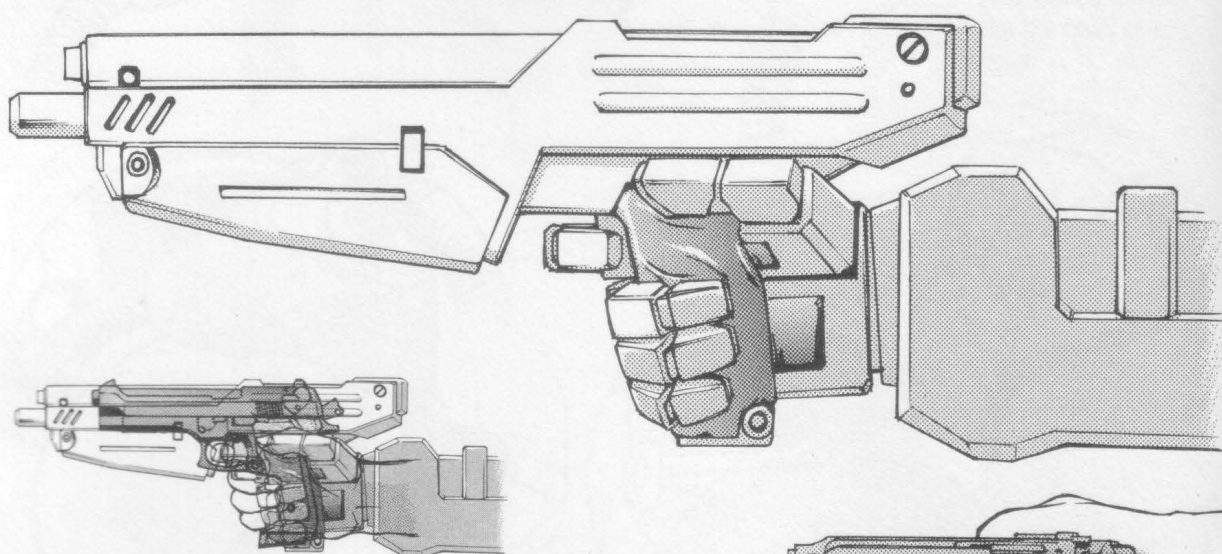
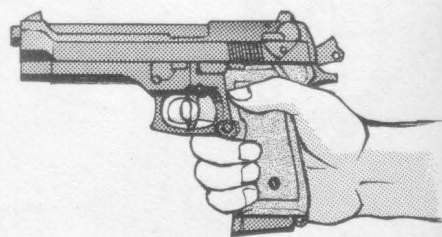
Redesigned to look like the head of a robot



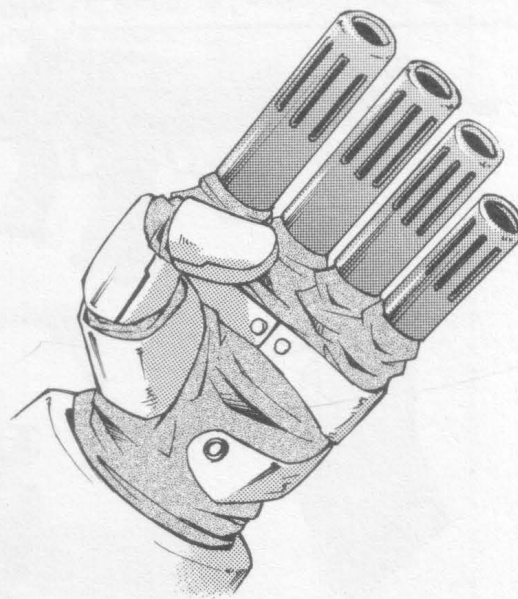
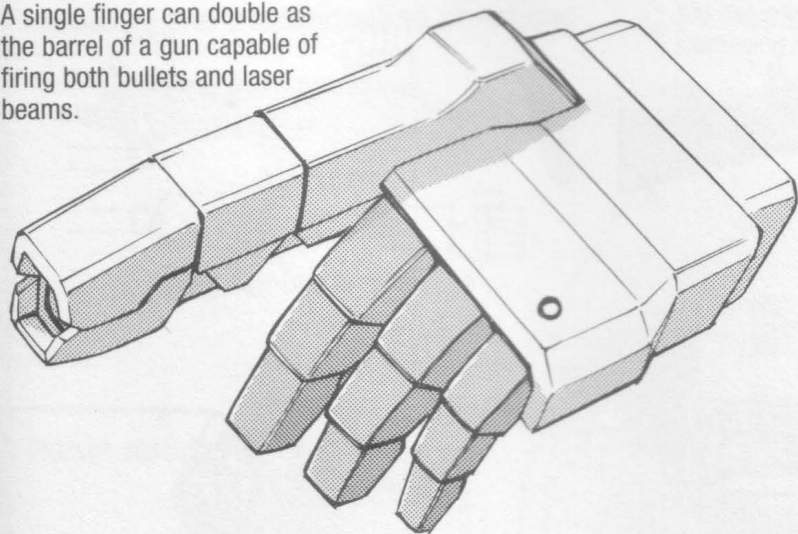


Weapons

Base stance and grip on actual pose.



A single finger can double as the barrel of a gun capable of firing both bullets and laser beams.

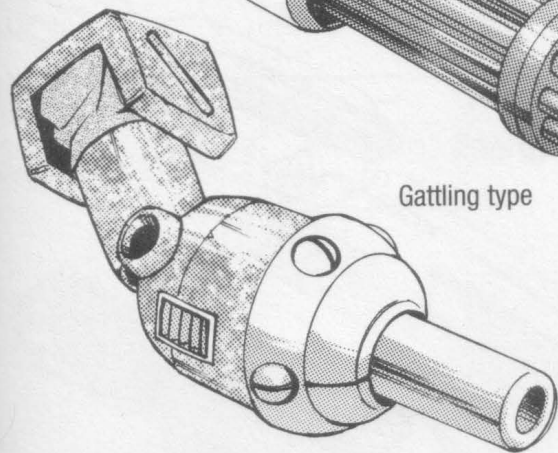


Arm Cannons

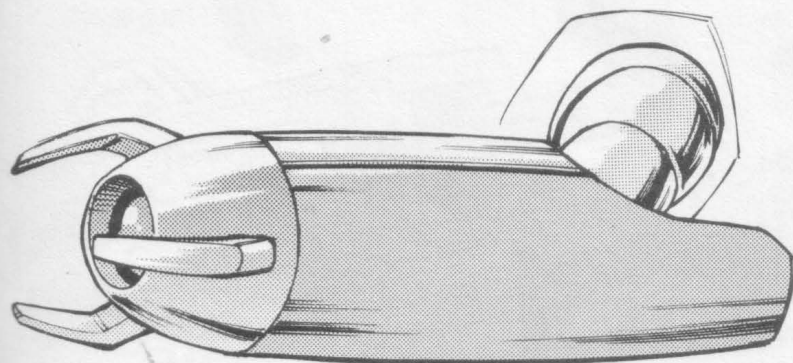
The arm is equipped with barrels and magazines.



Gatling type

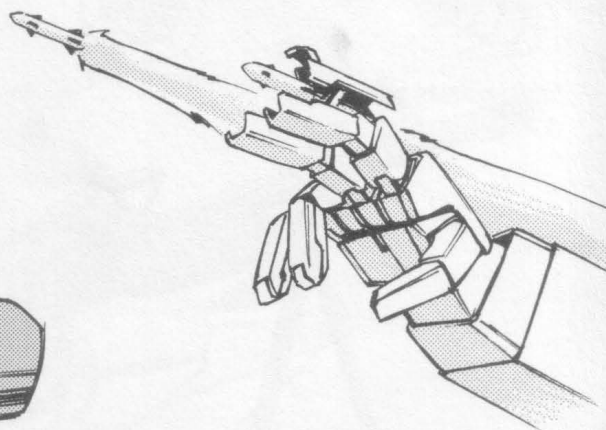
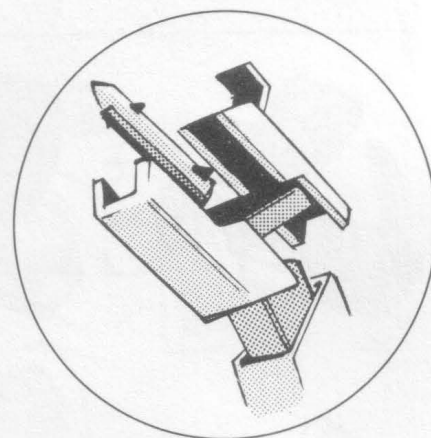


Cannon type



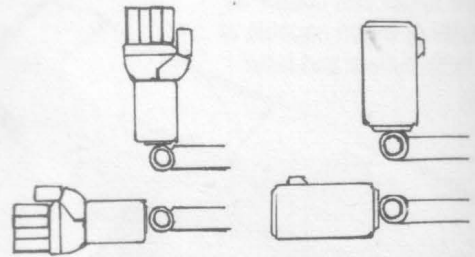
Laser type

Hand Missiles/Handguns

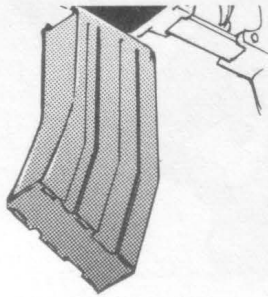


Magazine Arrangements

Apply magazines and loading systems to robot arm weapons.

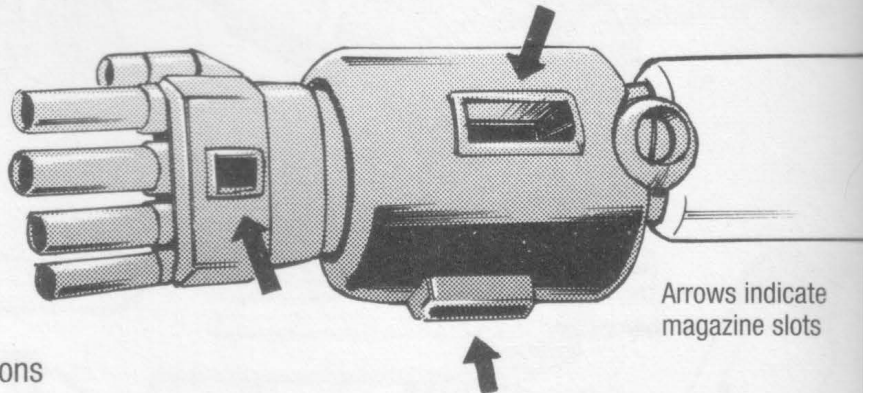


Hand- or arm-type guns

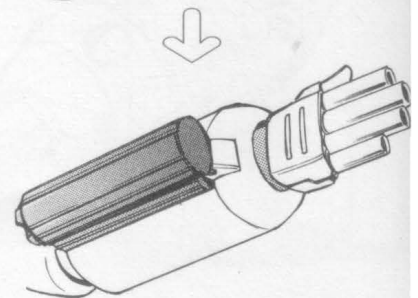
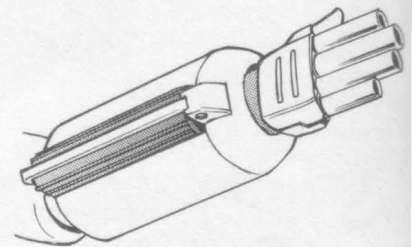
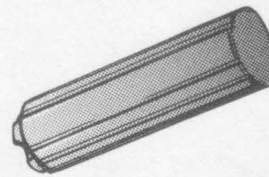
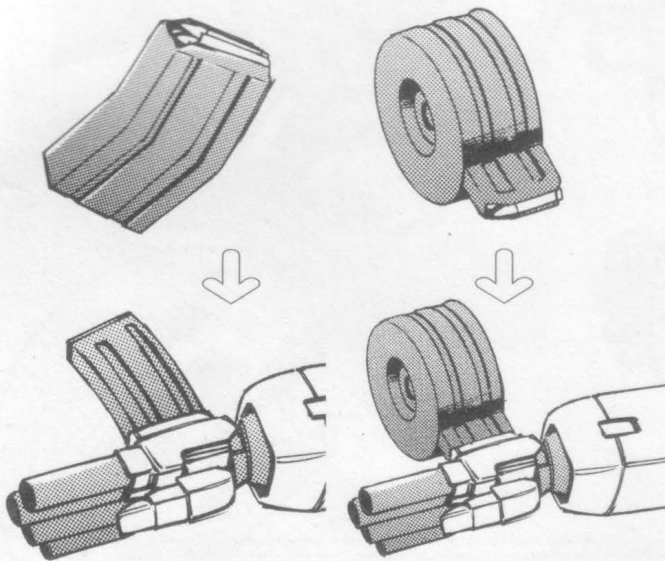


Exchange/removal of magazine

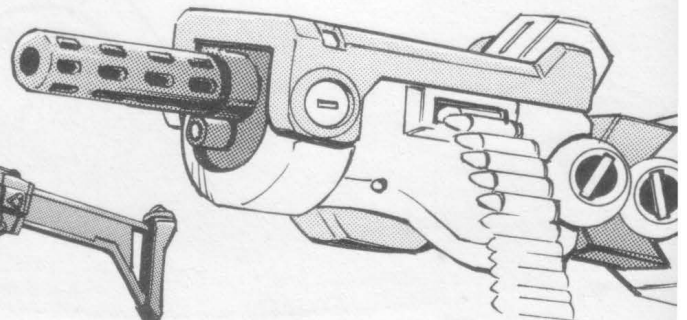
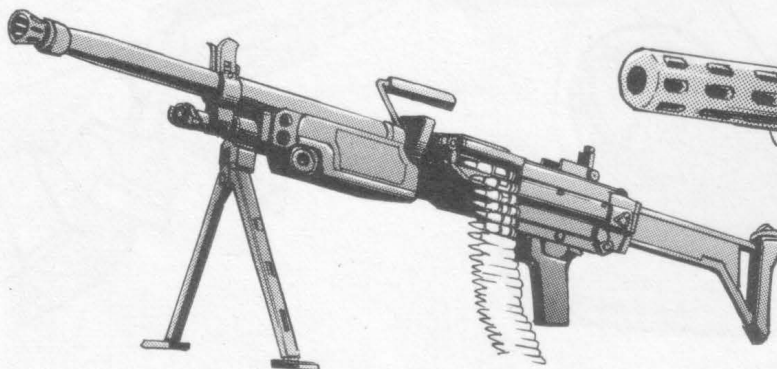
Magazine variations



Arrows indicate magazine slots



Machine guns



Exchange and transformation of options

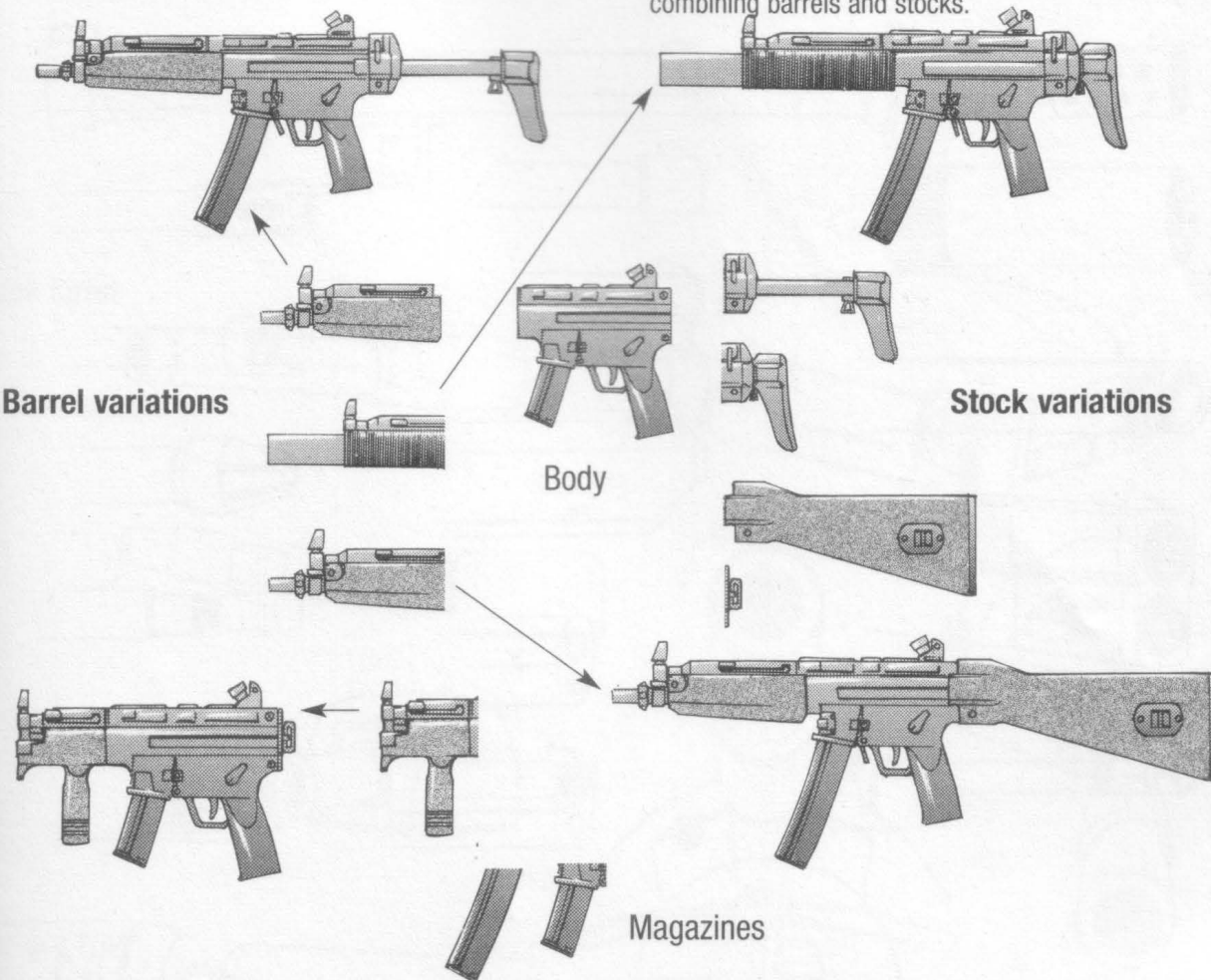
You can get a variety of shapes by exchanging and combining barrels and stocks.

Barrel variations

Stock variations

Body

Magazines



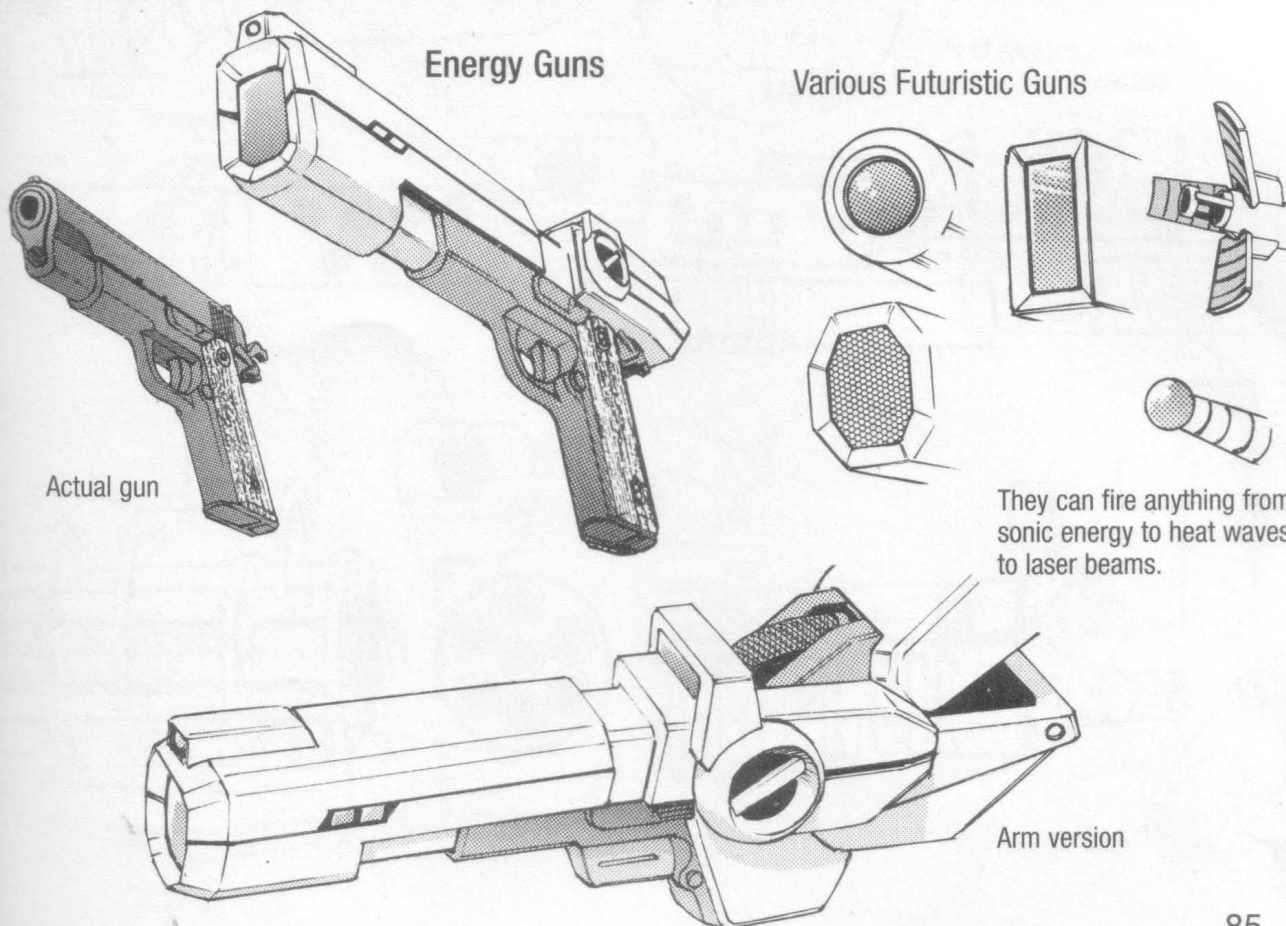
Energy Guns

Various Futuristic Guns

Actual gun

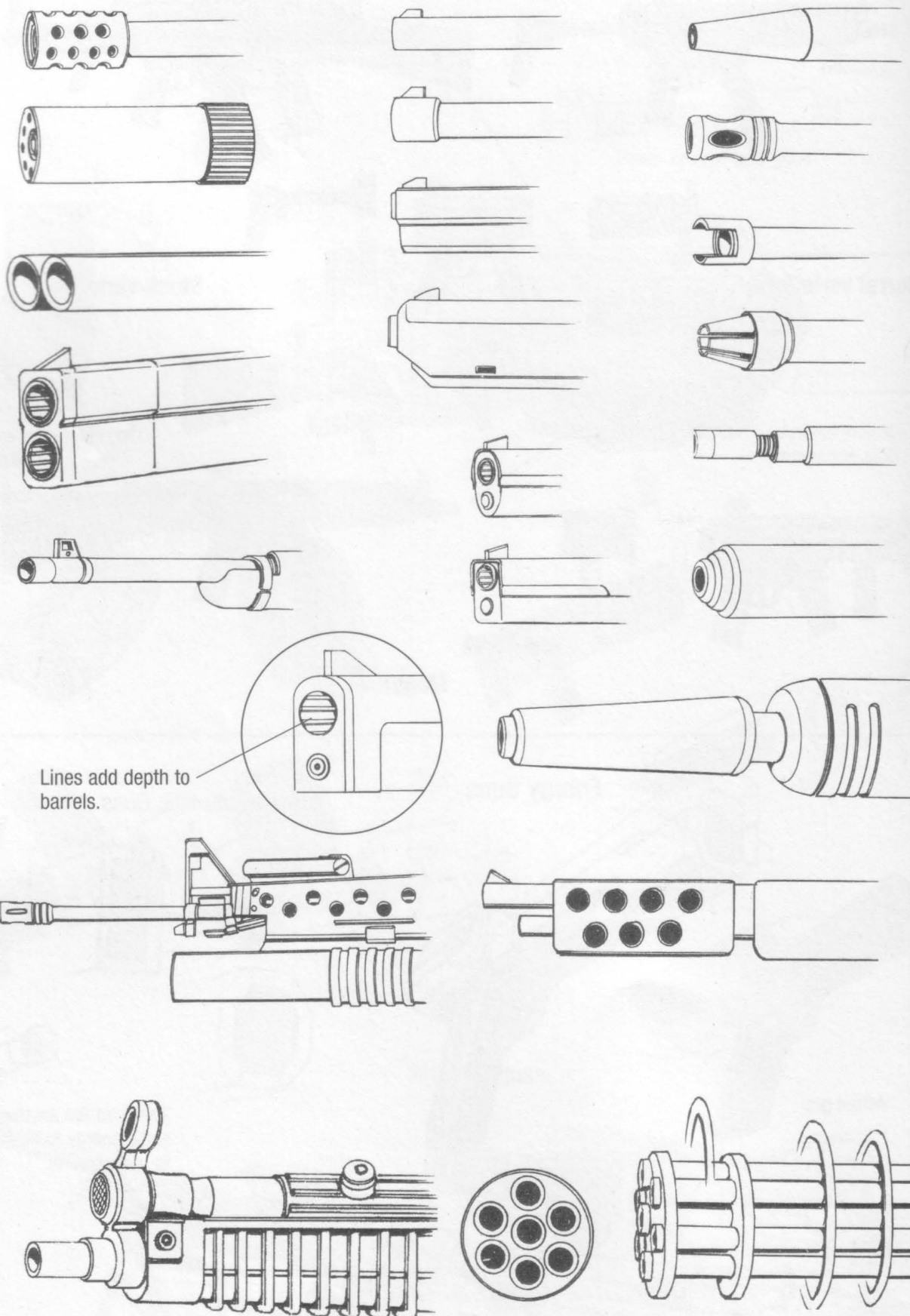
They can fire anything from sonic energy to heat waves to laser beams.

Arm version

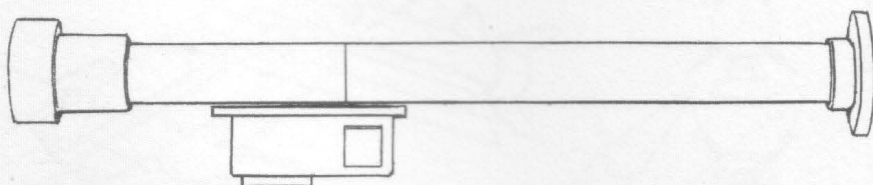


Barrels and Muzzles

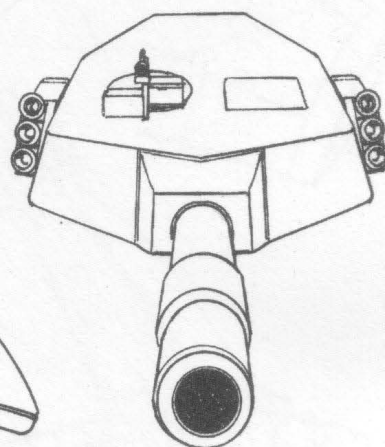
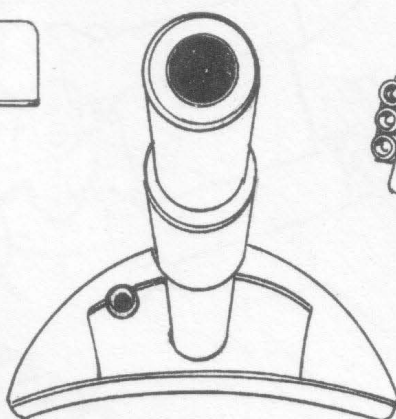
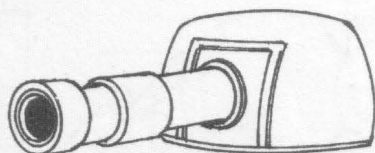
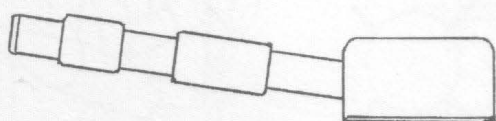
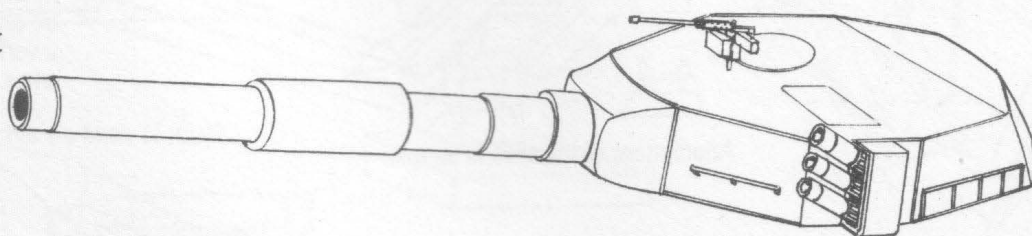
Use a variety of gun types, including sidearms, rifles and automatics.



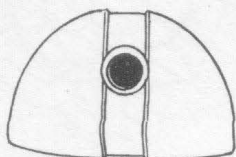
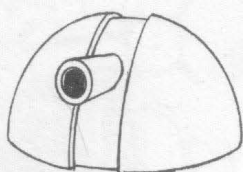
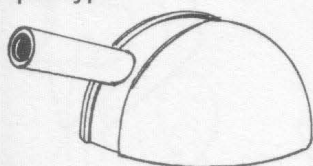
azooka



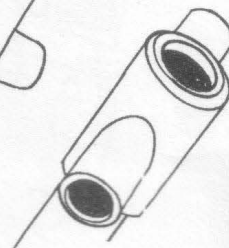
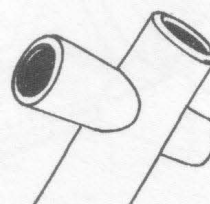
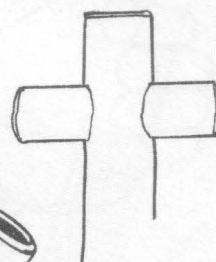
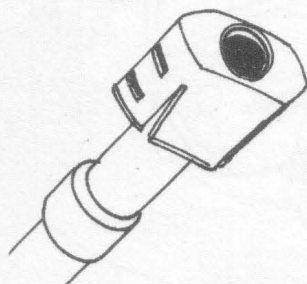
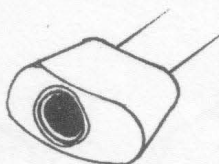
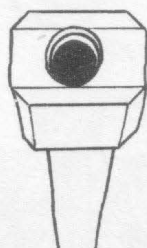
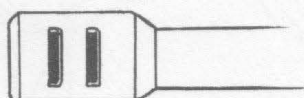
ank turret



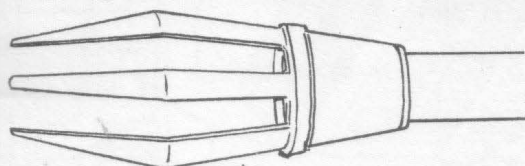
Simple type



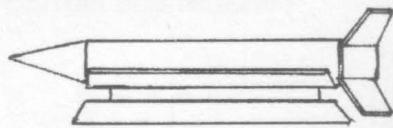
Muzzle



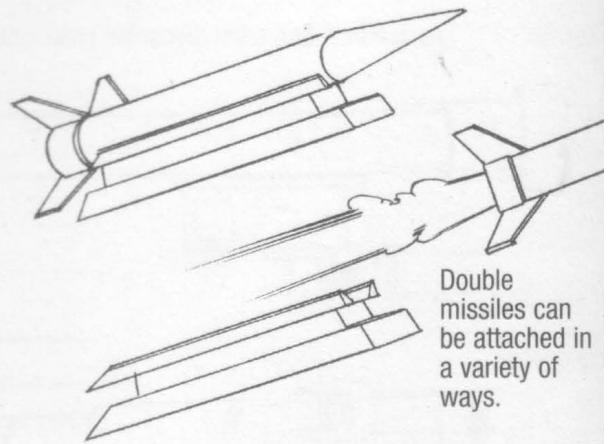
Tip of self-propelled
anti-aircraft gun



Missiles

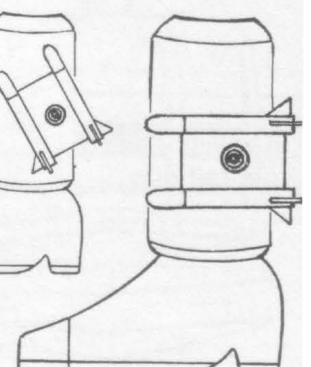
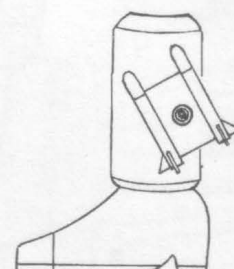
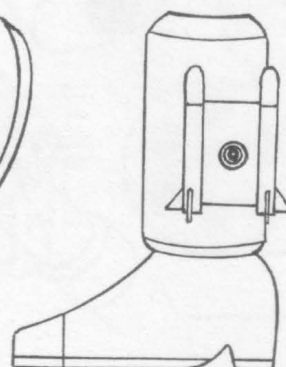
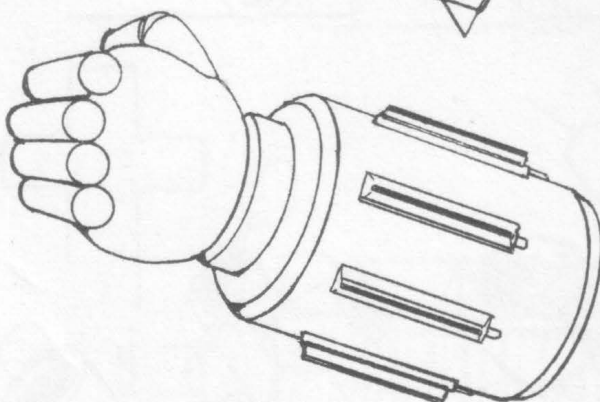
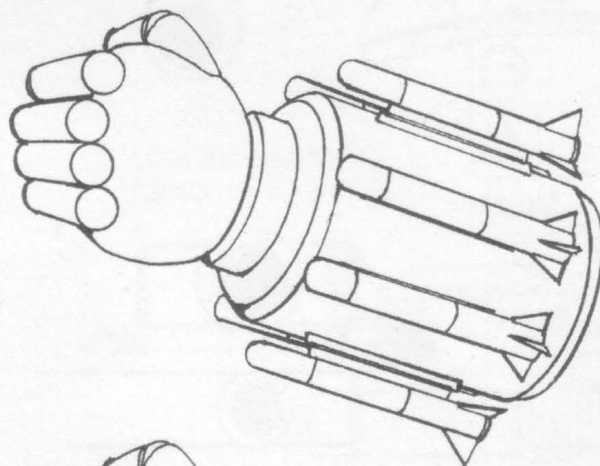
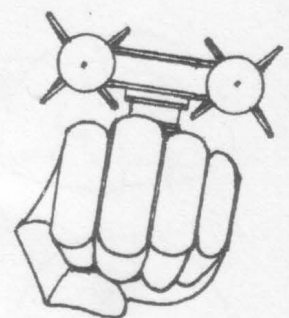
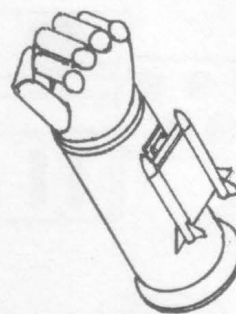
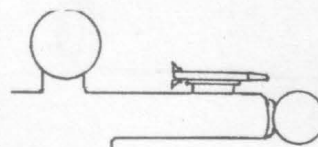
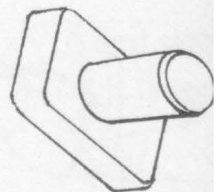
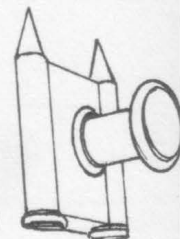
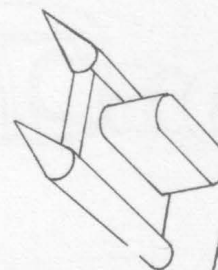
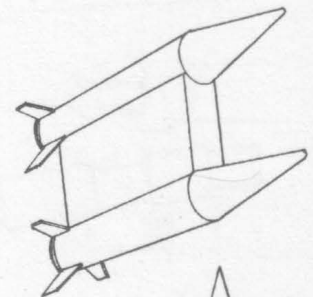
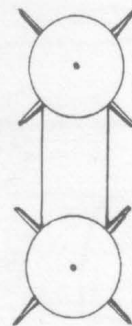
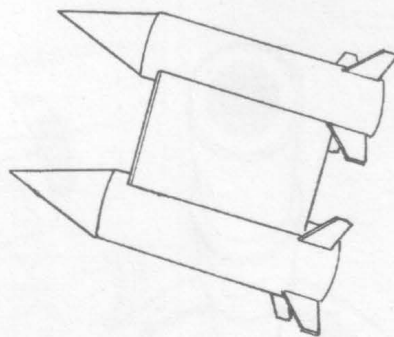
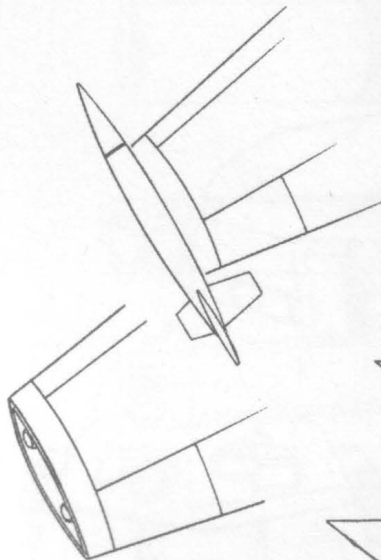


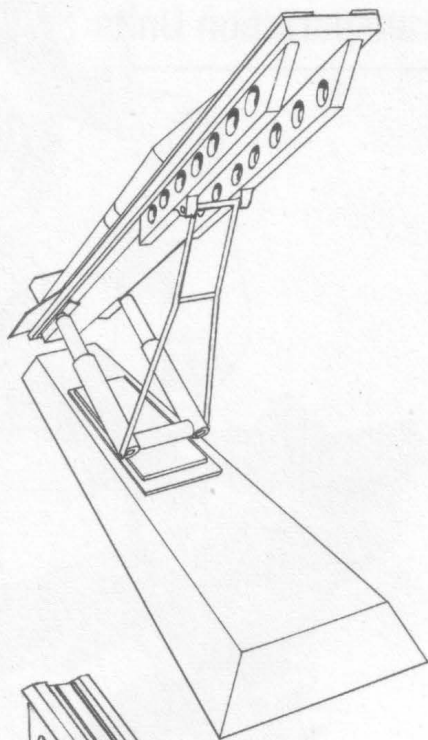
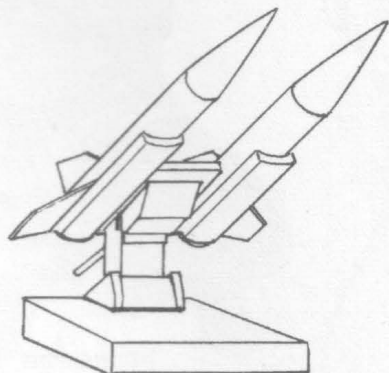
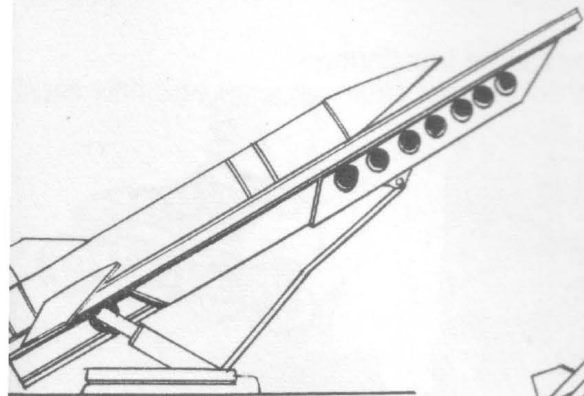
Sidewinder



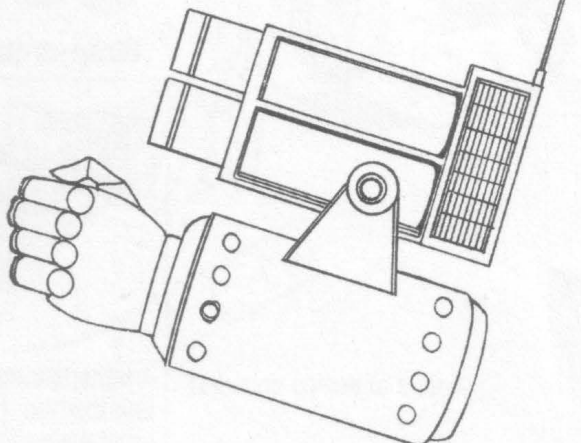
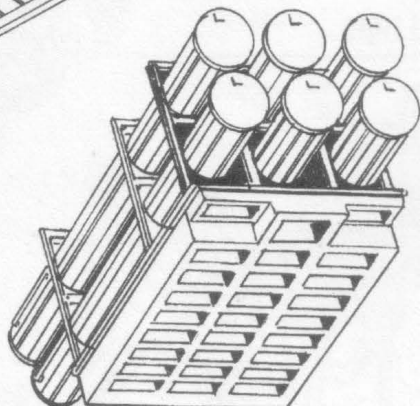
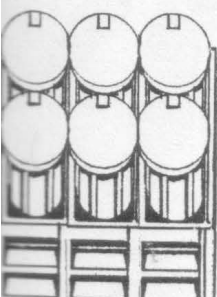
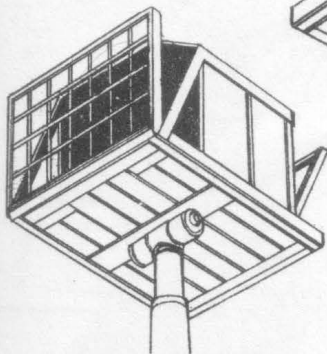
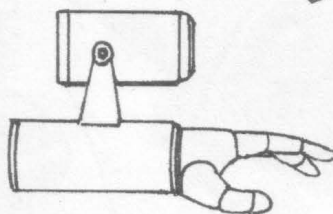
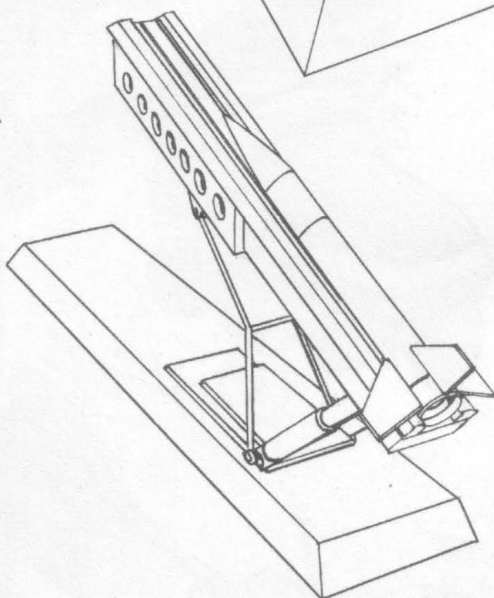
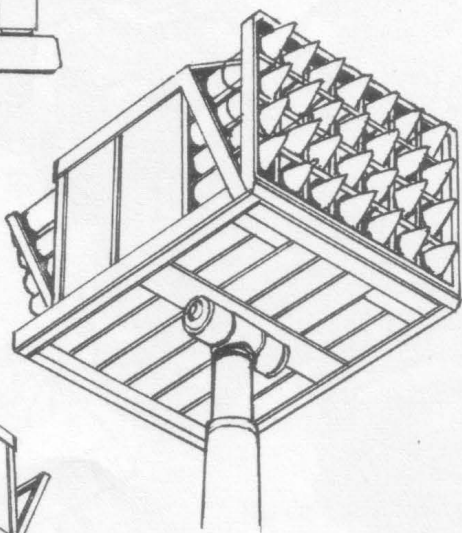
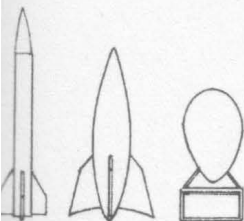
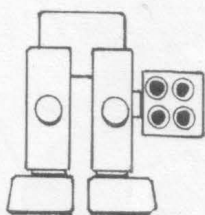
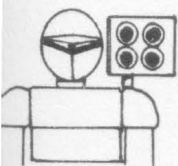
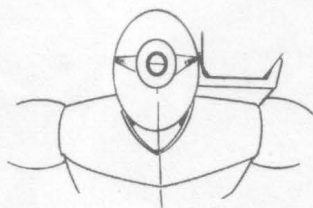
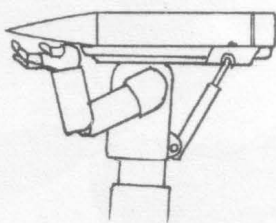
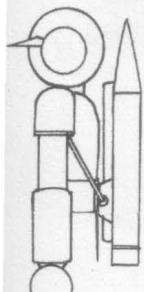
Double missiles can be attached in a variety of ways.

Attachment of missiles is simple.





Mount launcher on back of robot

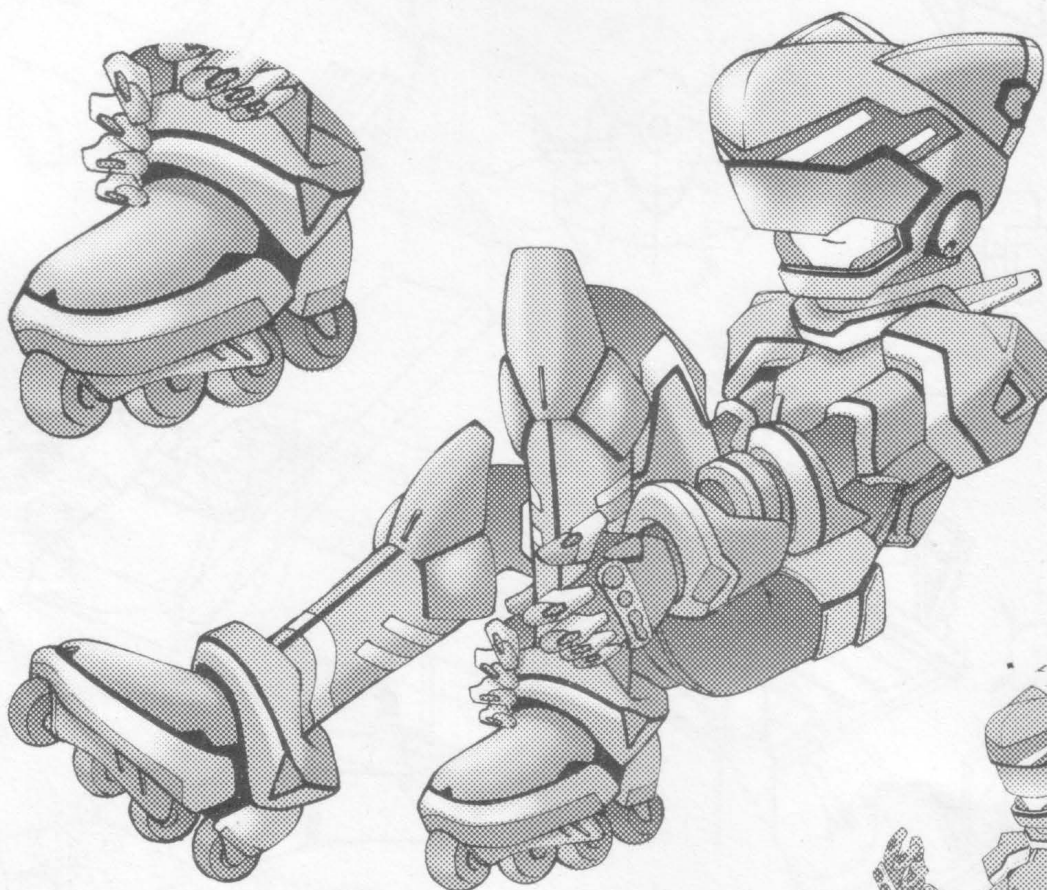


Transportation Units

Common items such as skates can be transformed into high-tech conveyances.



Inline skates

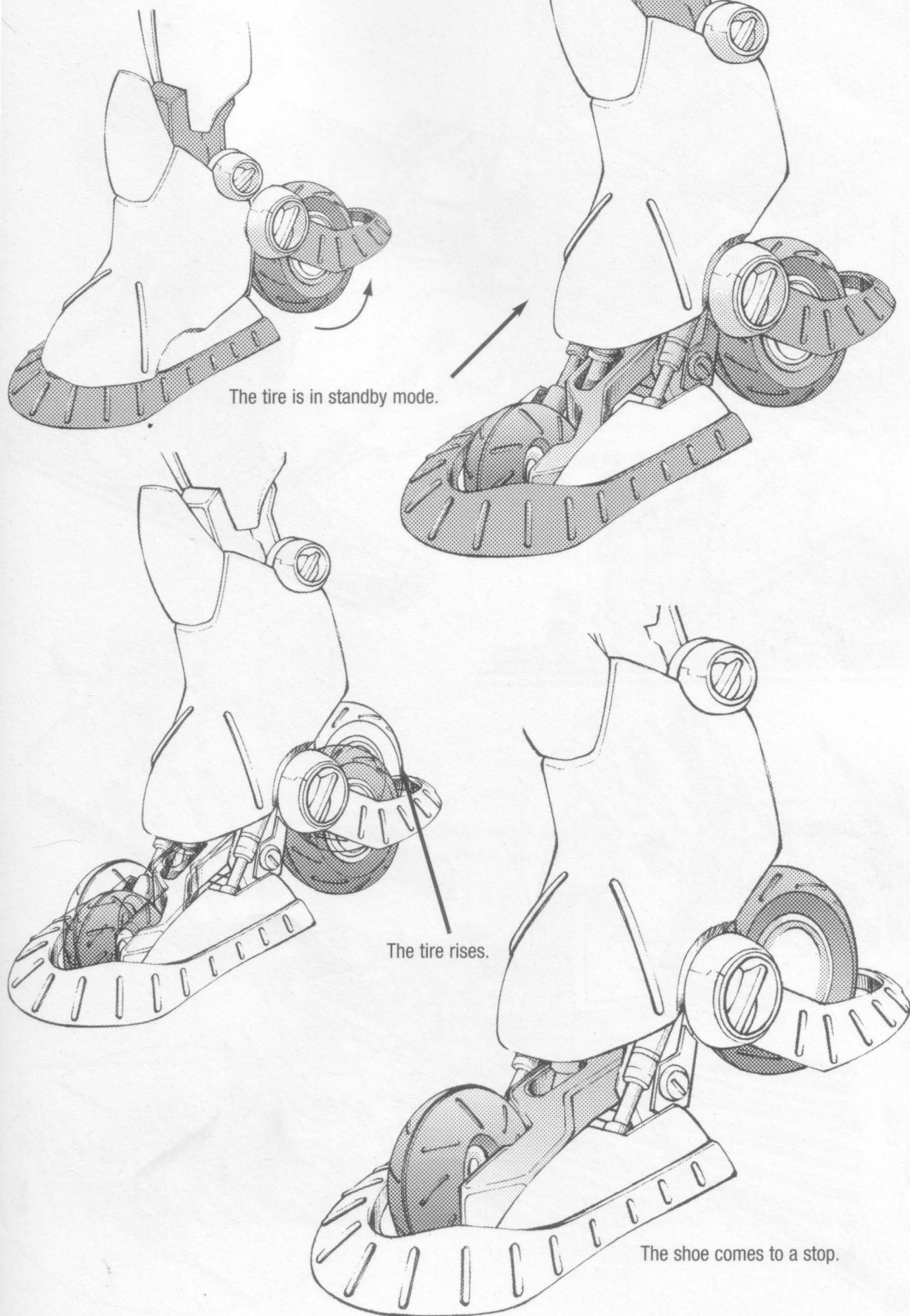


Wrap-around hips

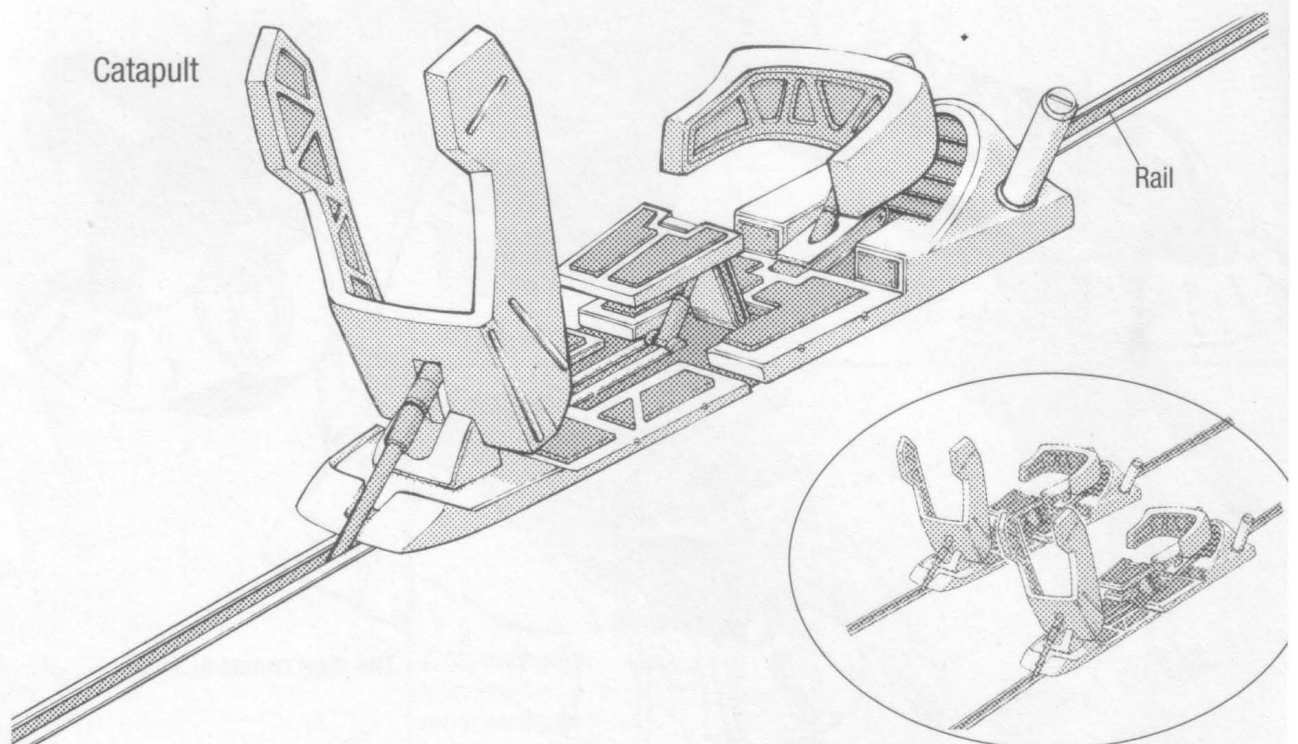
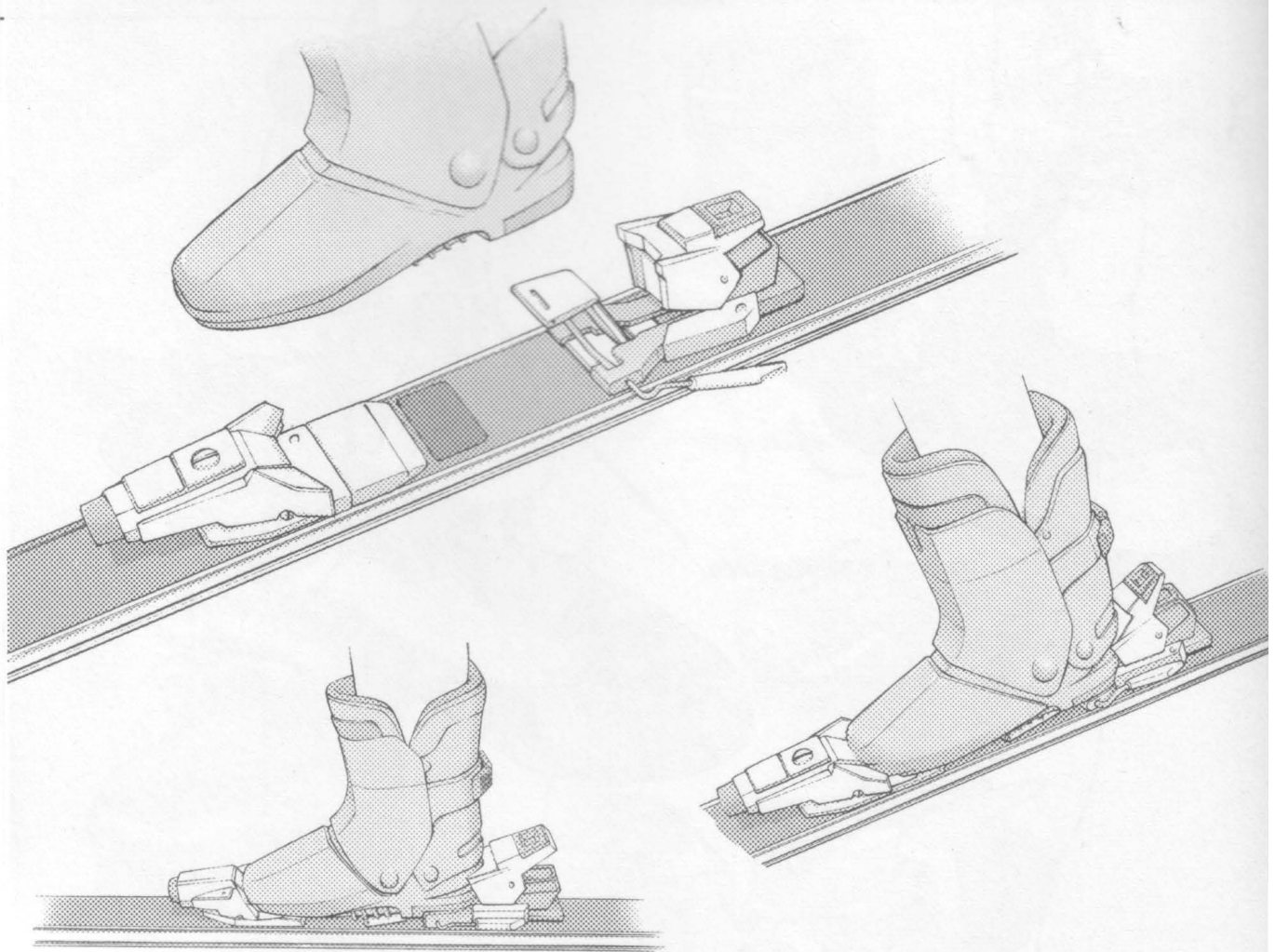


A transportation unit that the robot wears as a belt

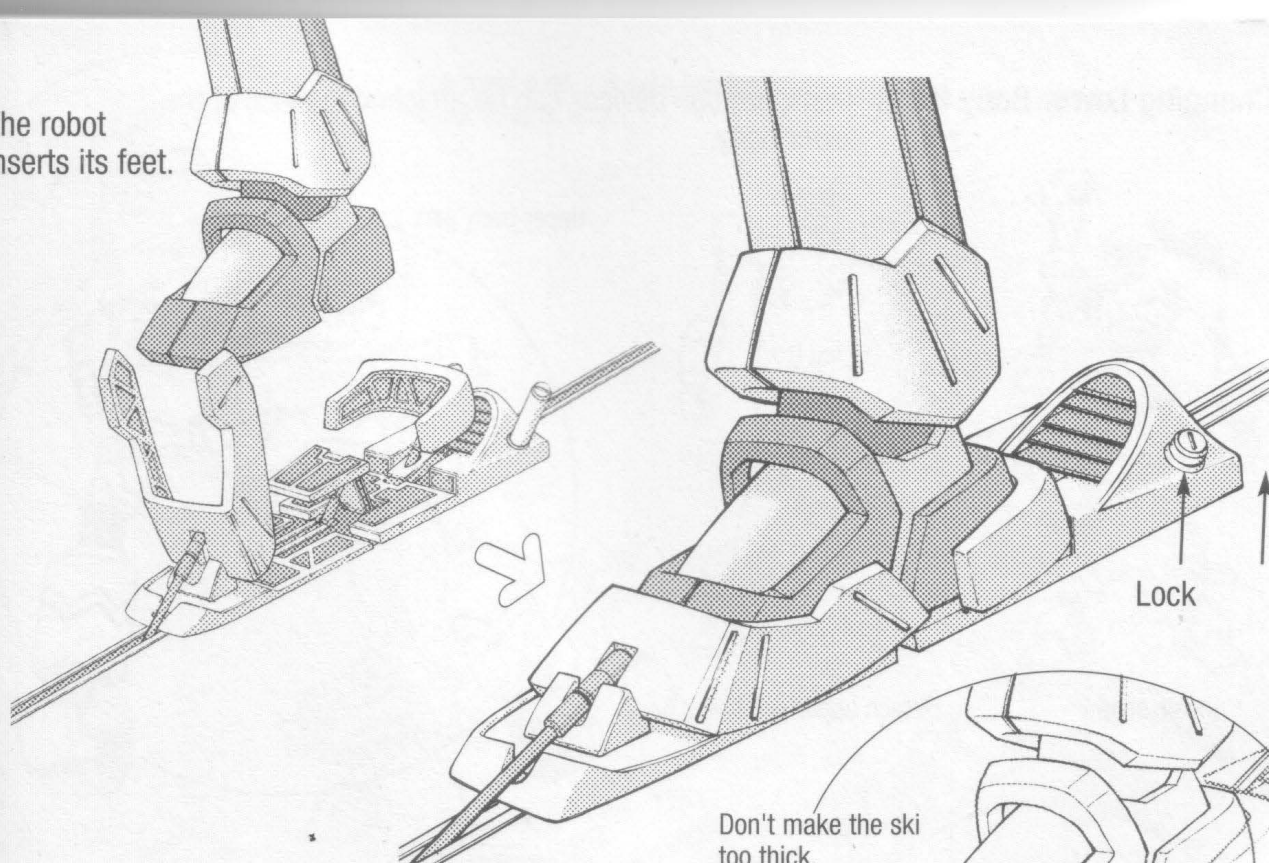
Shoes with tires have the same form as inline skates.



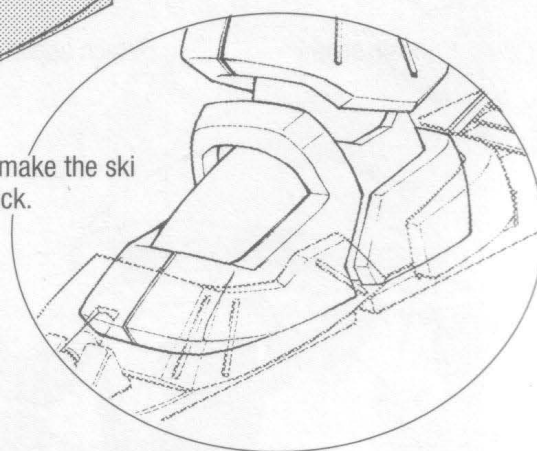
Using Ski Boots and Bindings as Catapults



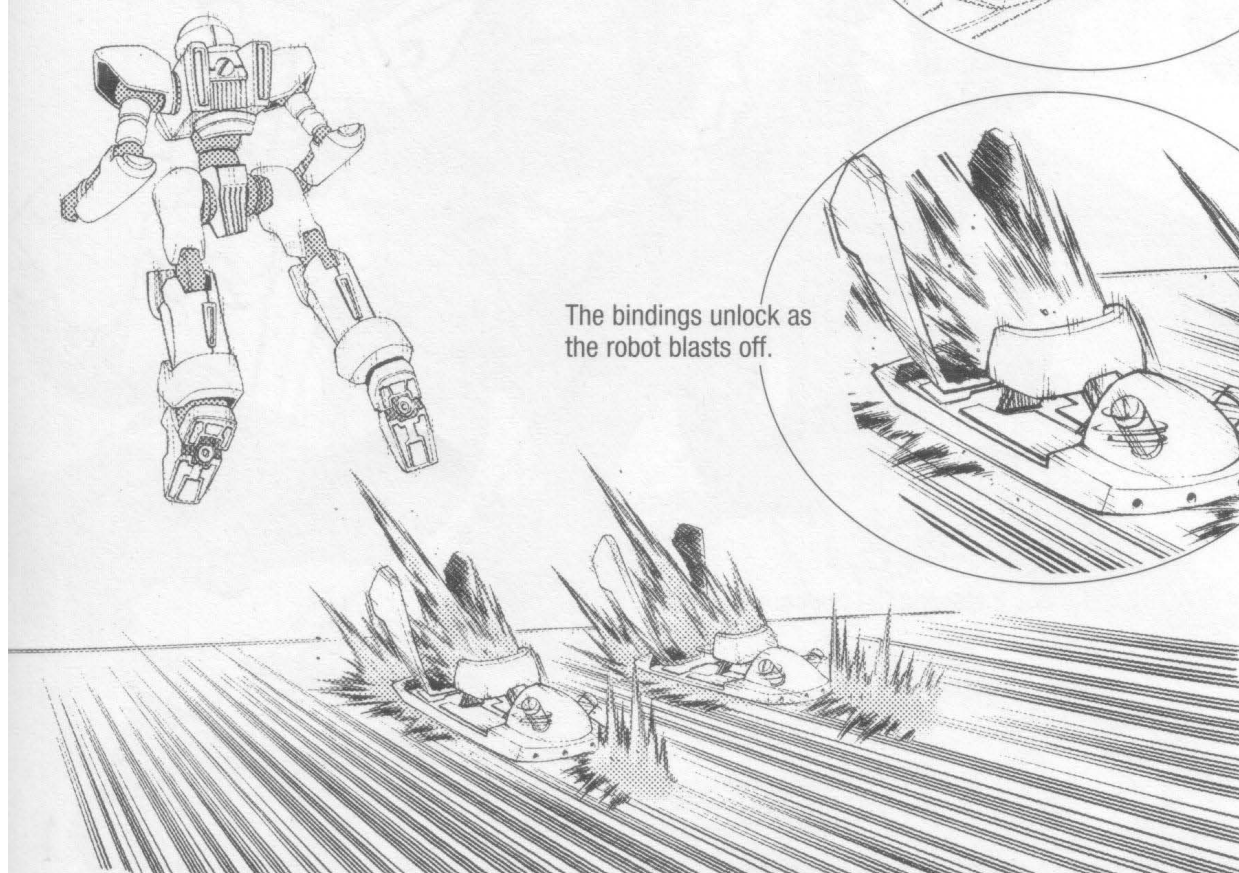
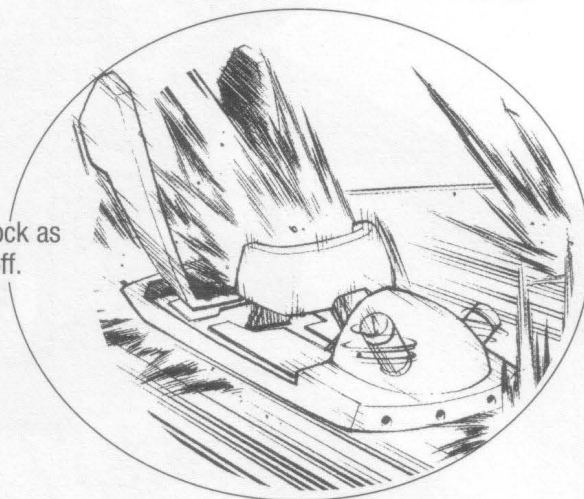
The robot
inserts its feet.



Don't make the ski
too thick.

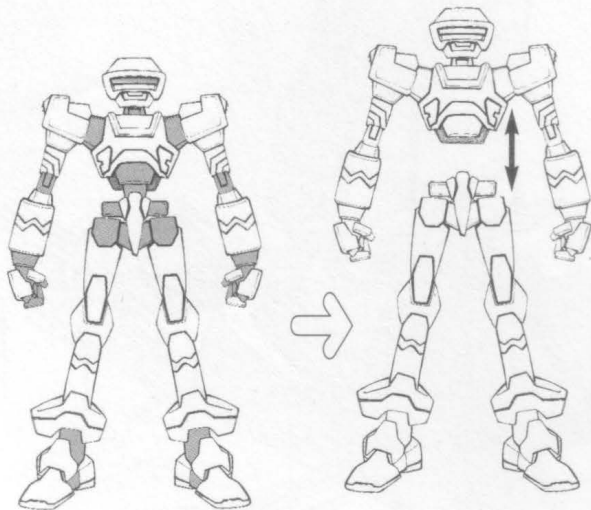


The bindings unlock
as the robot blasts off.



Changing Lower Body Parts

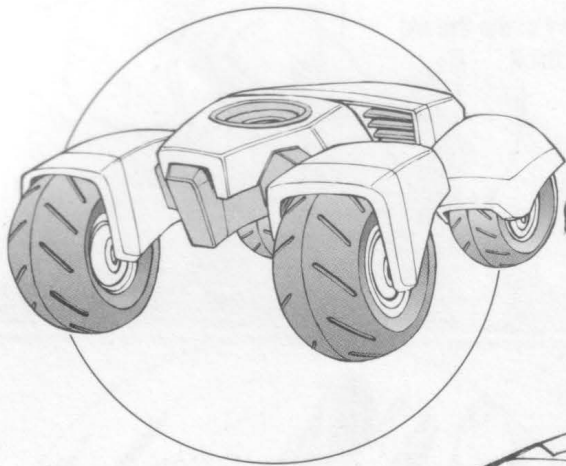
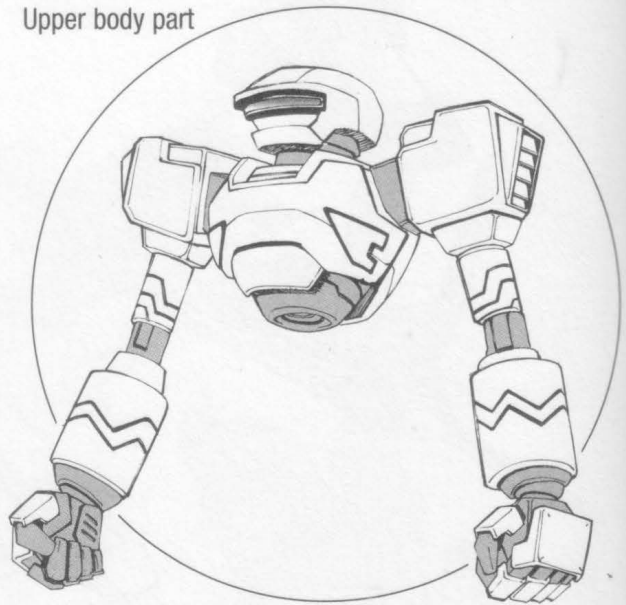
Transportation devices can be attached in place of the lower body.



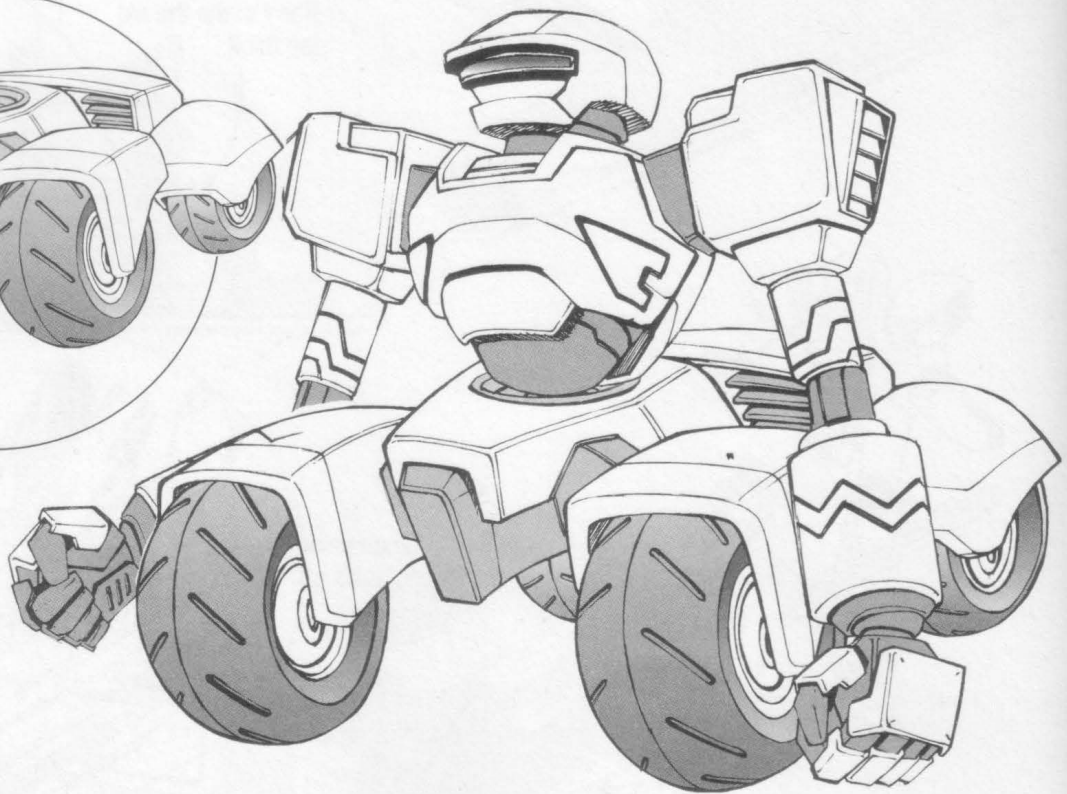
Basic style

Detach upper and lower body.

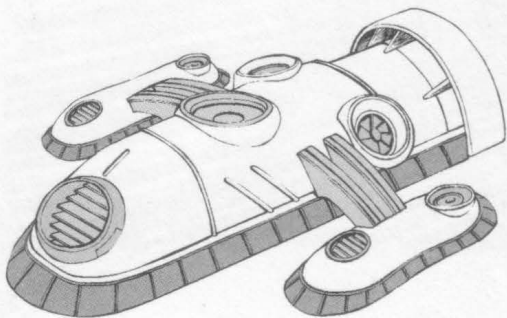
Upper body part



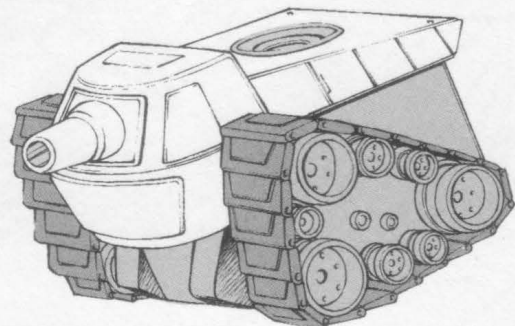
Car/buggy part



You are free to choose any transportation device.

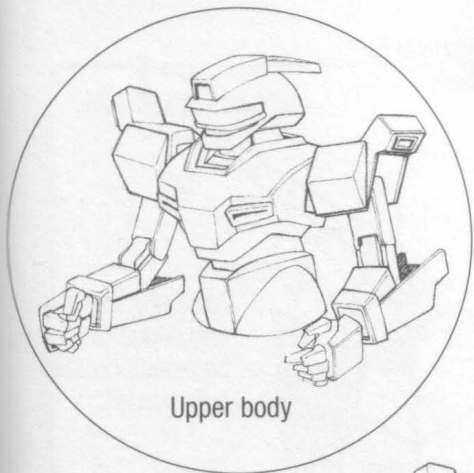


Marine type

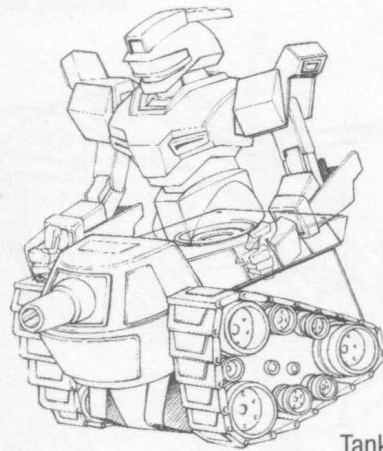


Tank type

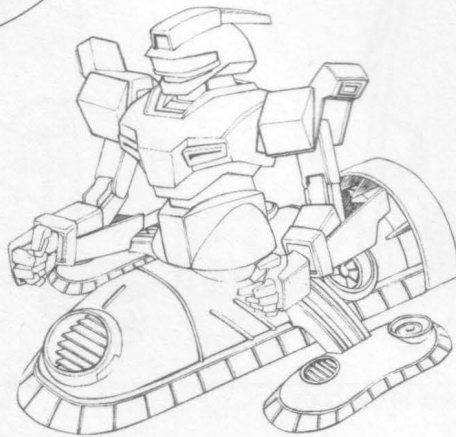
The robot does not even need a lower body at first.



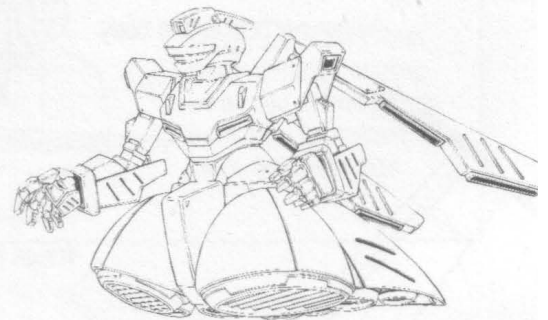
Upper body



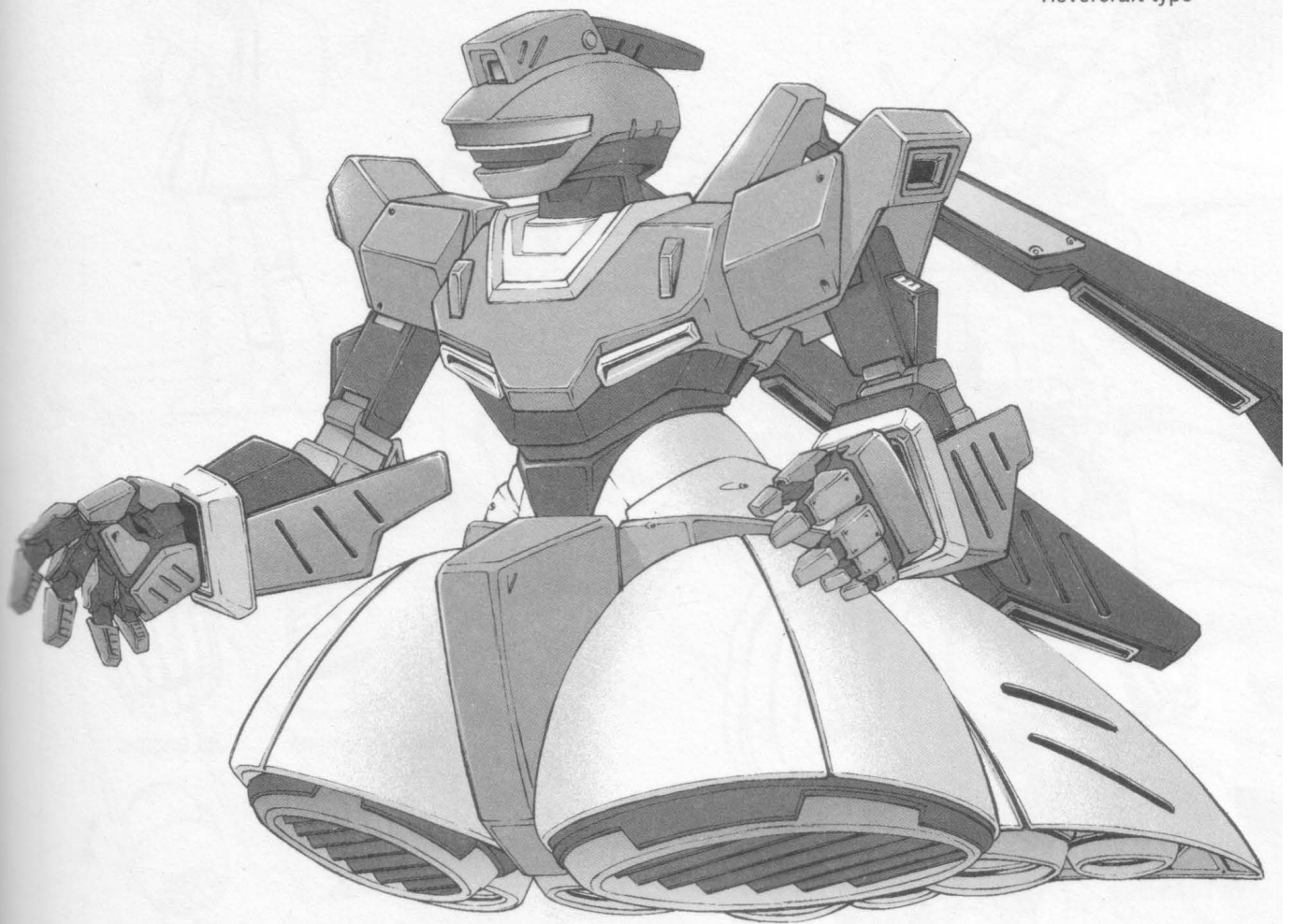
Tank type



Marine type

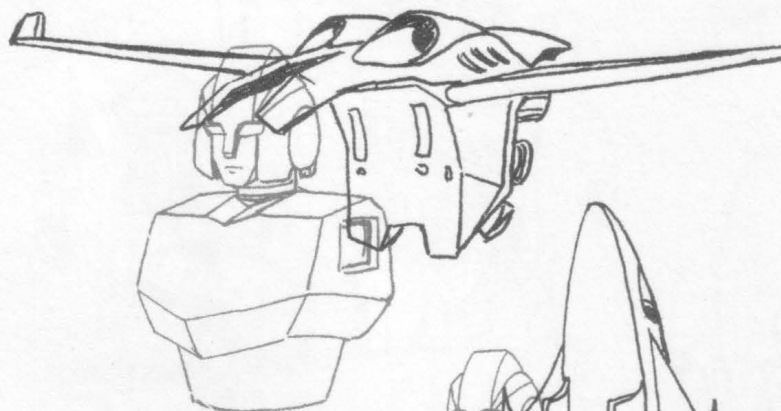


Hovercraft type



Flying Parts and Wings

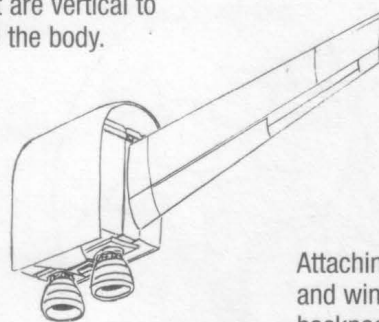
There are two types of wings: Those that are vertical to the body and those that are horizontal to the body.



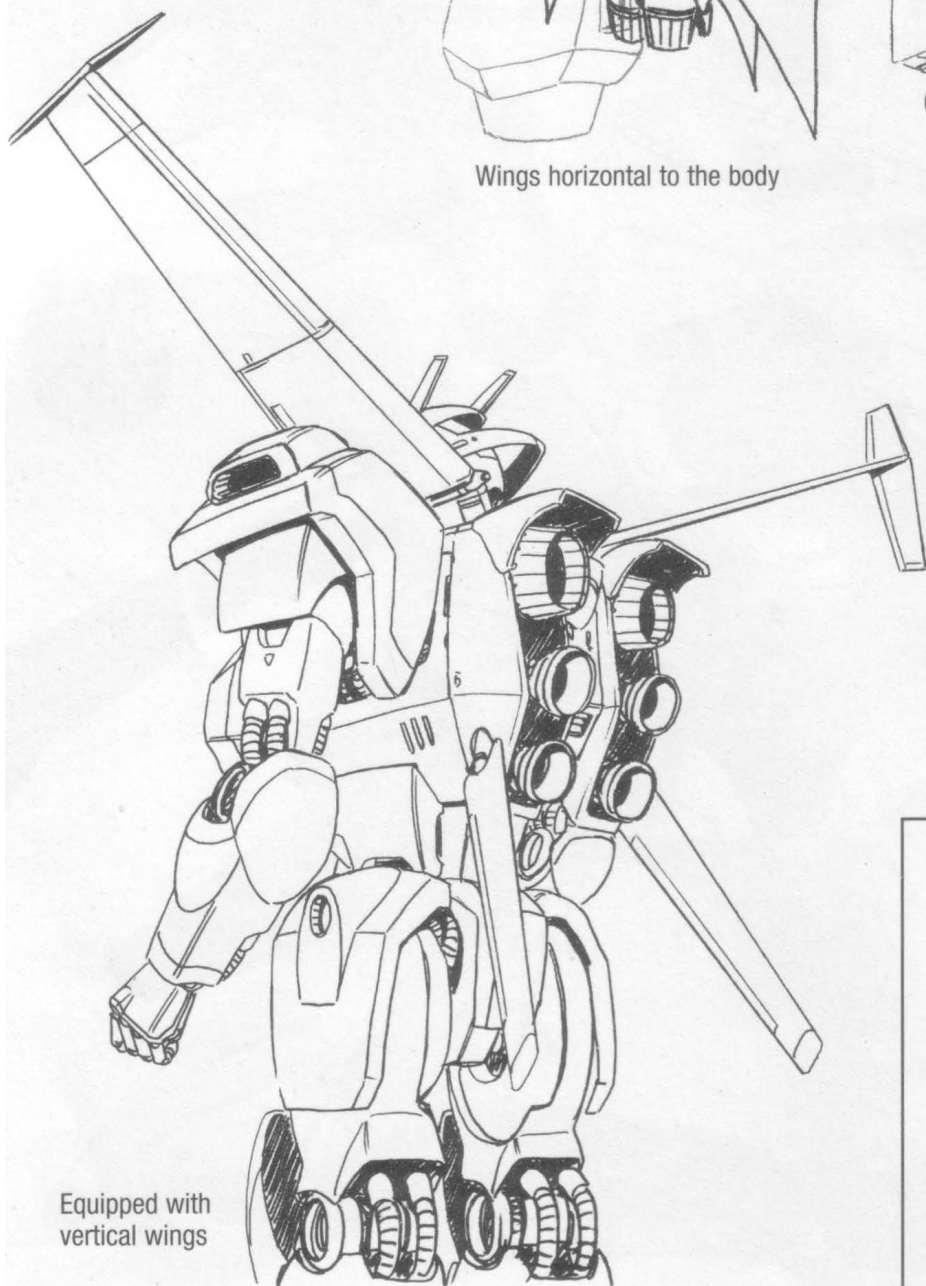
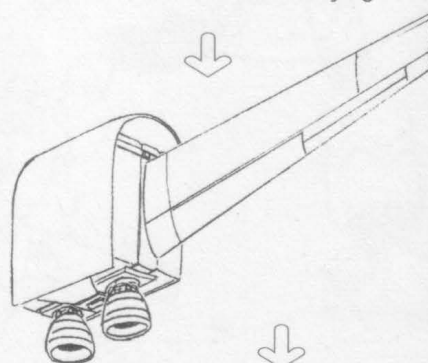
Wings vertical to the body



Wings horizontal to the body



Attaching nozzles and wings to a backpack creates a flying unit.



Equipped with vertical wings

Propulsion nozzles



Rocket engine



Jet engine

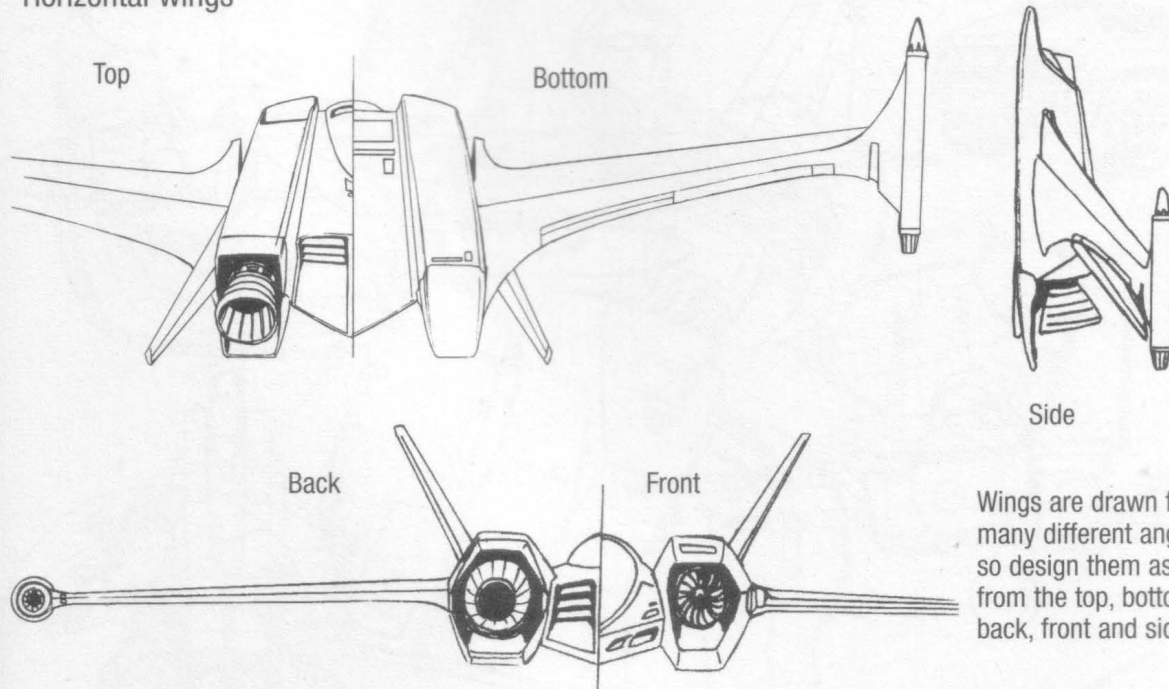


Square jet



Round jet

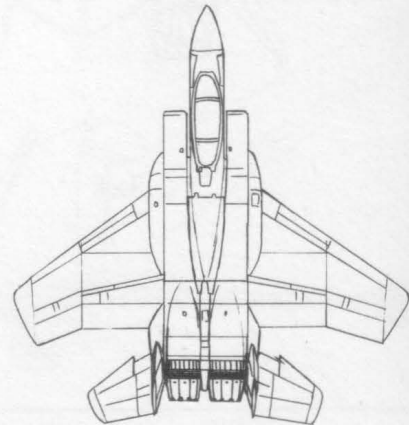
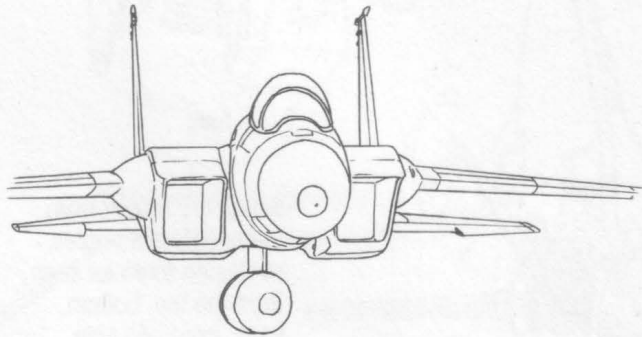
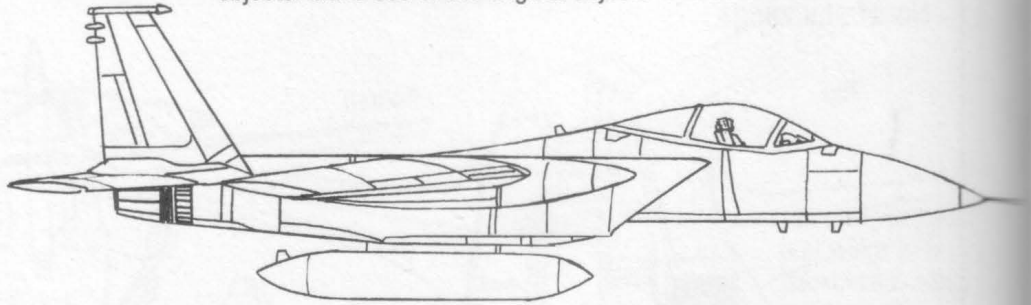
Horizontal wings



Transformers

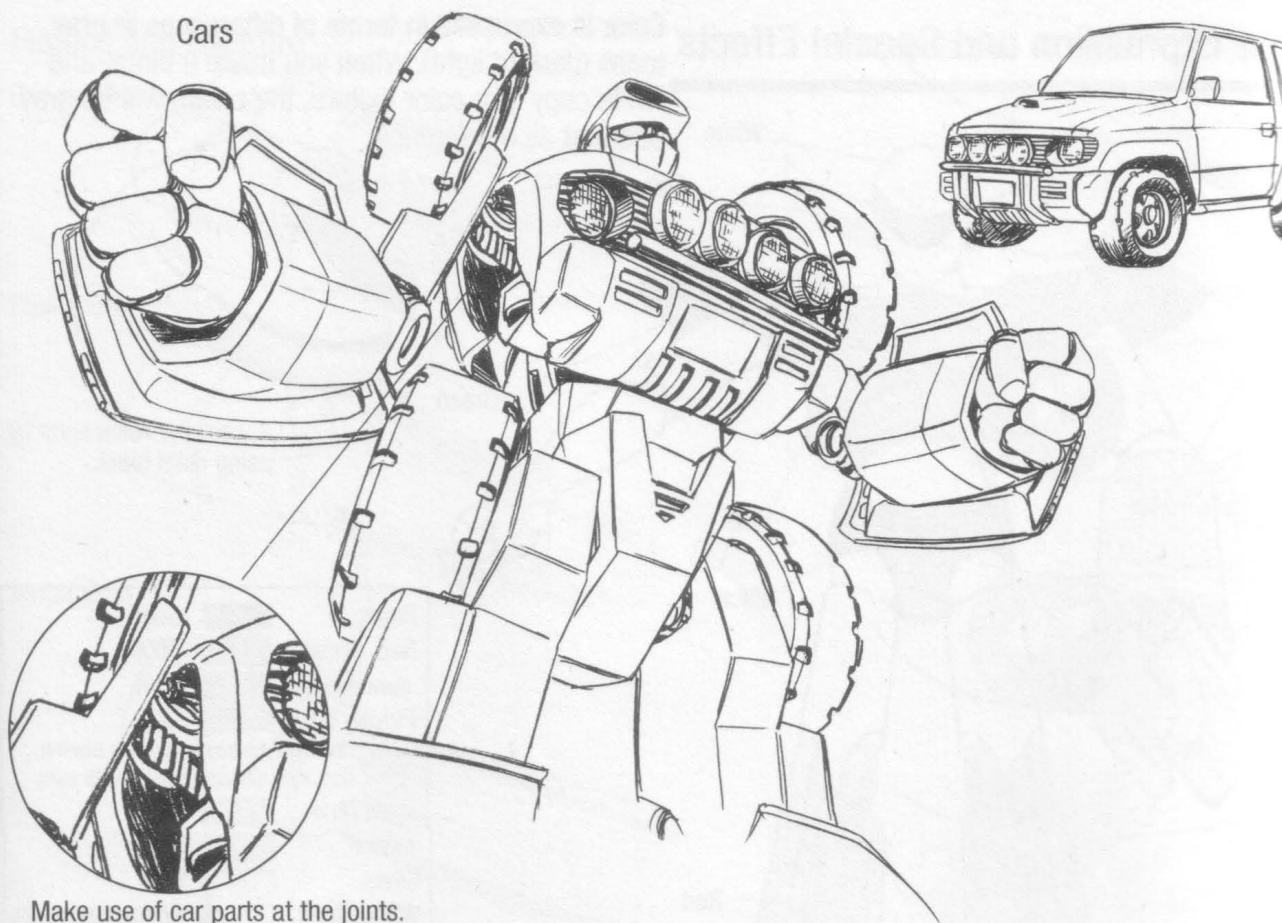
Jet fighters

Create a robot by combining parts from jet fighters, cars and other objects. Make use of the original objects' characteristics.



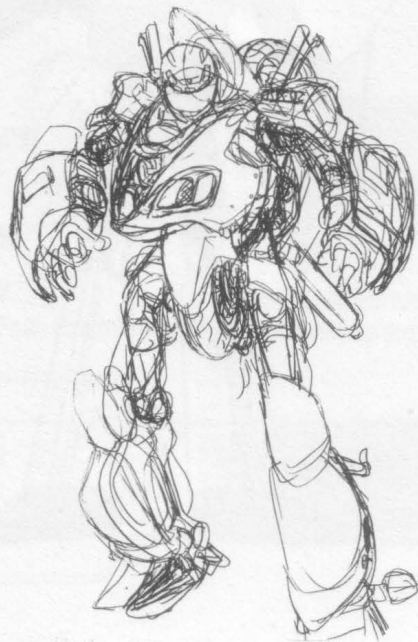
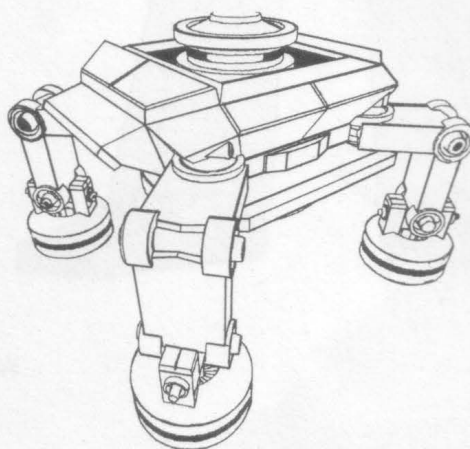
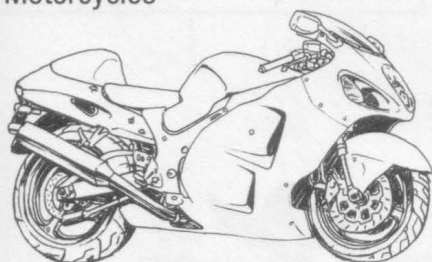
If you design a robot by clearly combining parts from other mechanical devices, it will look like the robot has combined with another robot or transformed into another machine.

Cars



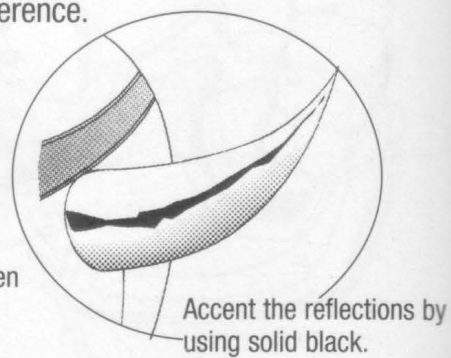
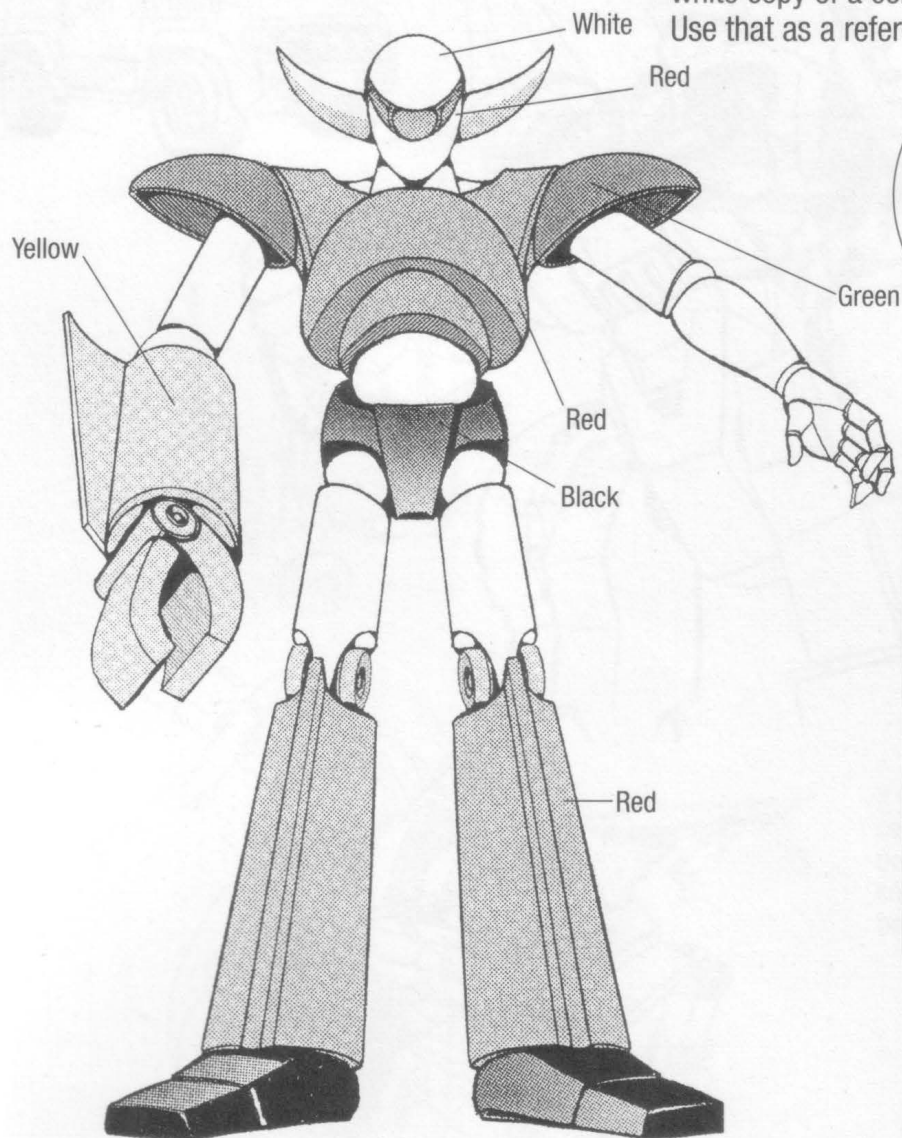
Make use of car parts at the joints.

Motorcycles



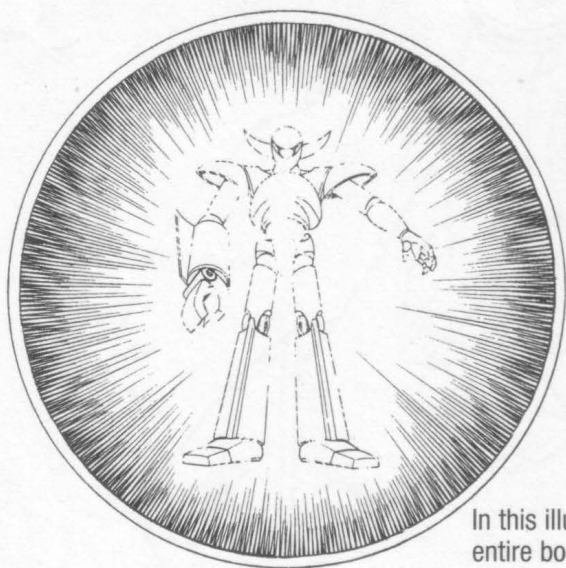
Color Expression and Special Effects

Color is expressed in terms of differences in gray tones (dark or light). When you make a black-and-white copy of a color picture, the colors will be gray. Use that as a reference.

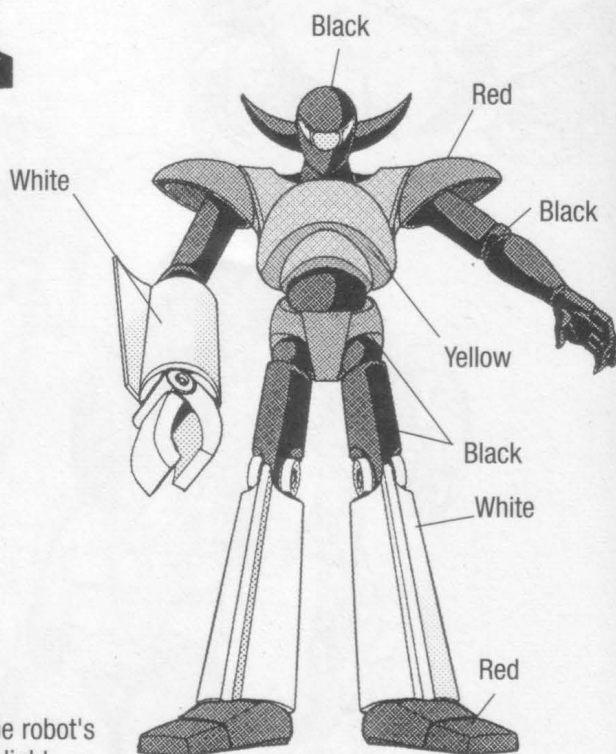


Black		Solid
Red, green		30%
(dark colors)		25%
Purple, blue		20%
Gold	*Increase contrast of gold by planing dark tone. Should combine with solid.	
Light blue		15%
Yellow		10%
Silver		5%
White, light		White (0%)

*In general, use dark tone for dark colors and strong colors and light tone for light colors. You should have contrast in at least two places, i.e., dark/light (apply, do not apply, etc.).

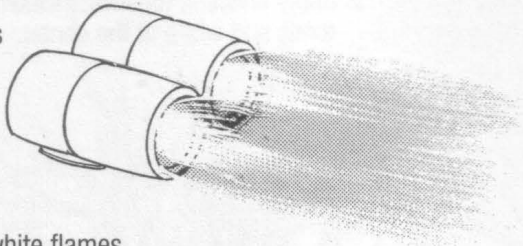


In this illustration, the robot's entire body radiates light.

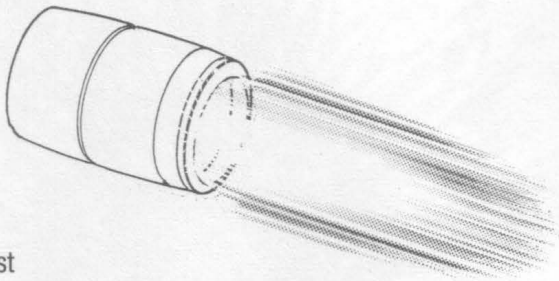


Flames and Backfire

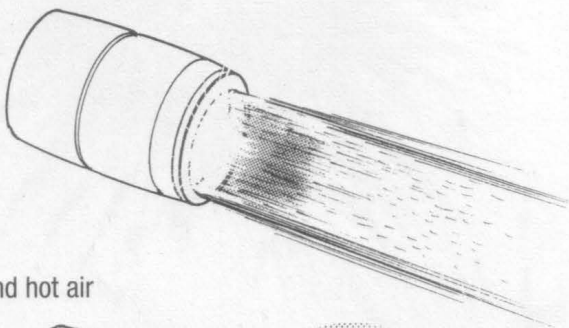
Red flames



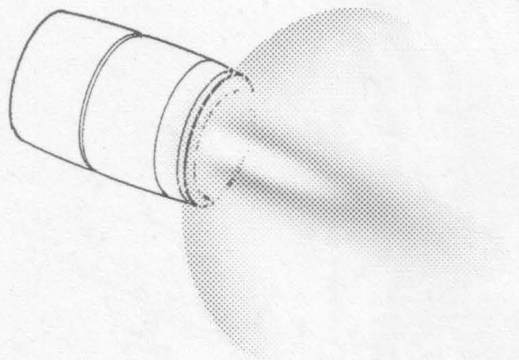
Blue and white flames



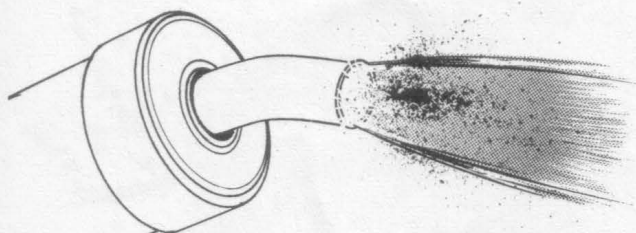
Air/jet blast



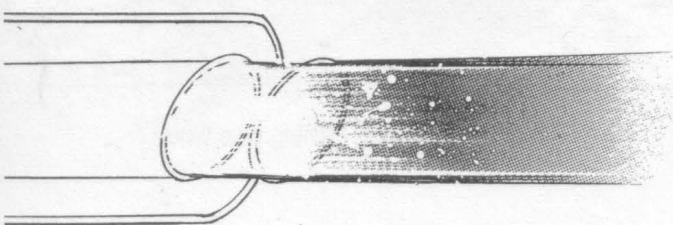
Flames and hot air



Red accompanied by explosion

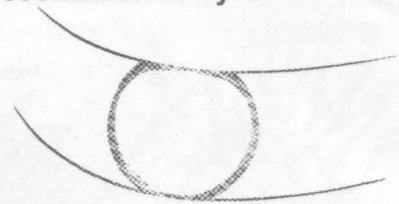


Fast-streaming red

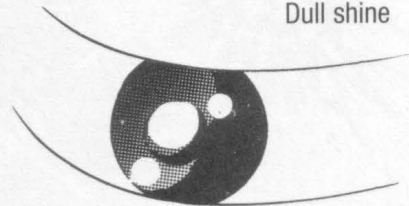


Ink splatters are an effective way to depict an explosion.

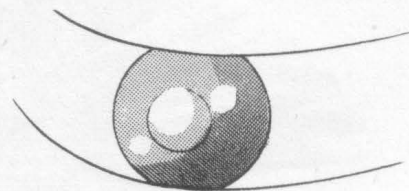
Presentation of eyes



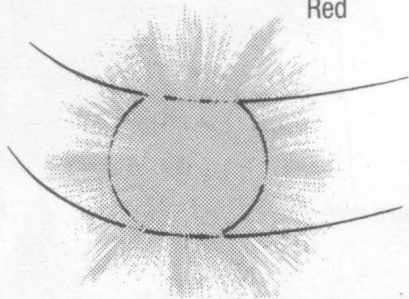
Dull shine



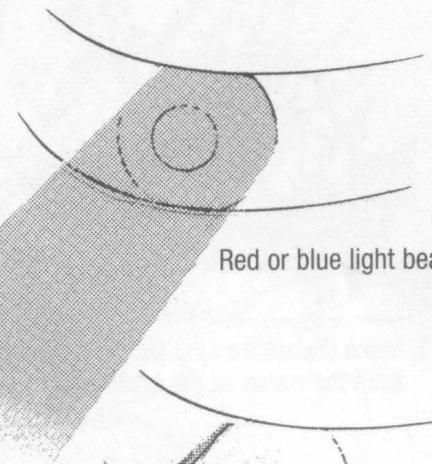
Normal eye



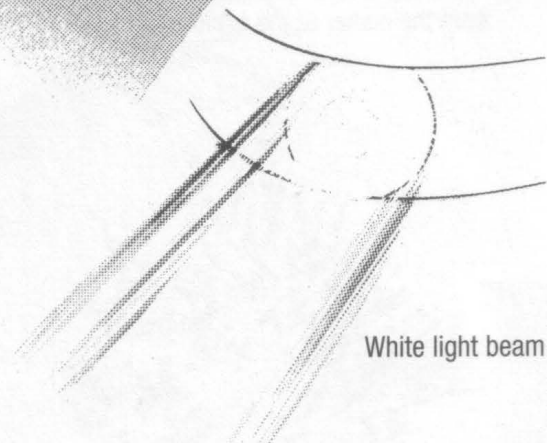
Red



Shining red

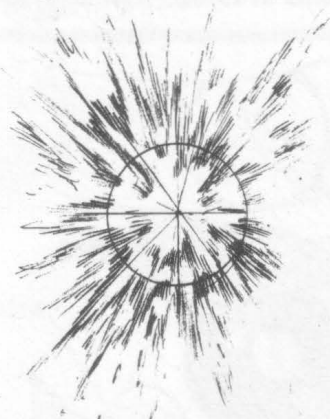


Red or blue light beam

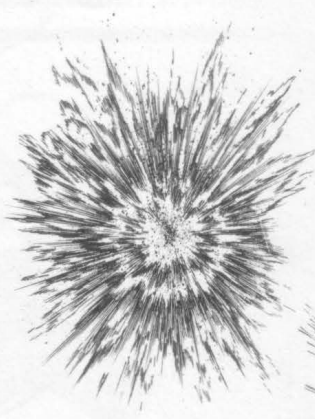


White light beam

Explosions and Smoke

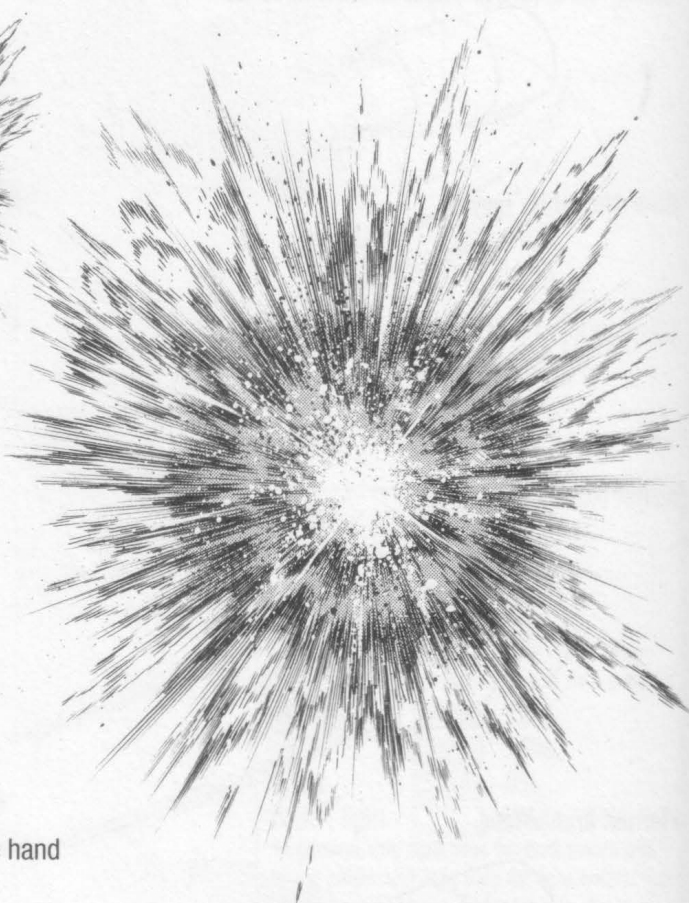


1. Make a rough sketch



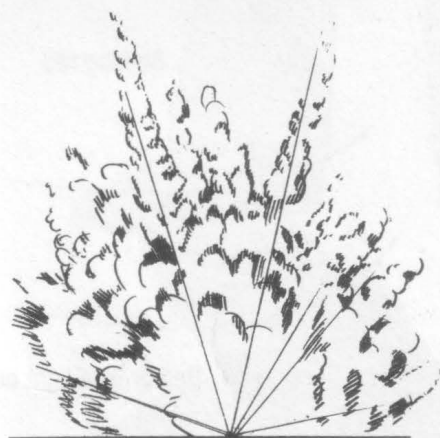
2. Draw with pen

3. Apply finishing touches, including tones and white at the center.

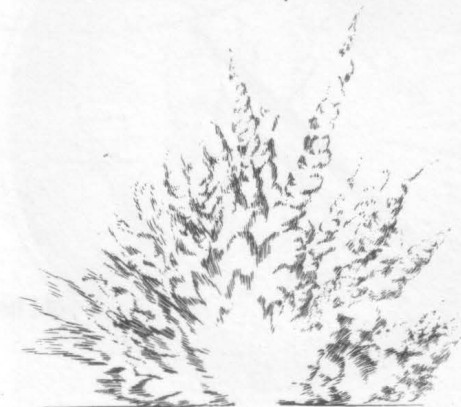


Drawn with ruler

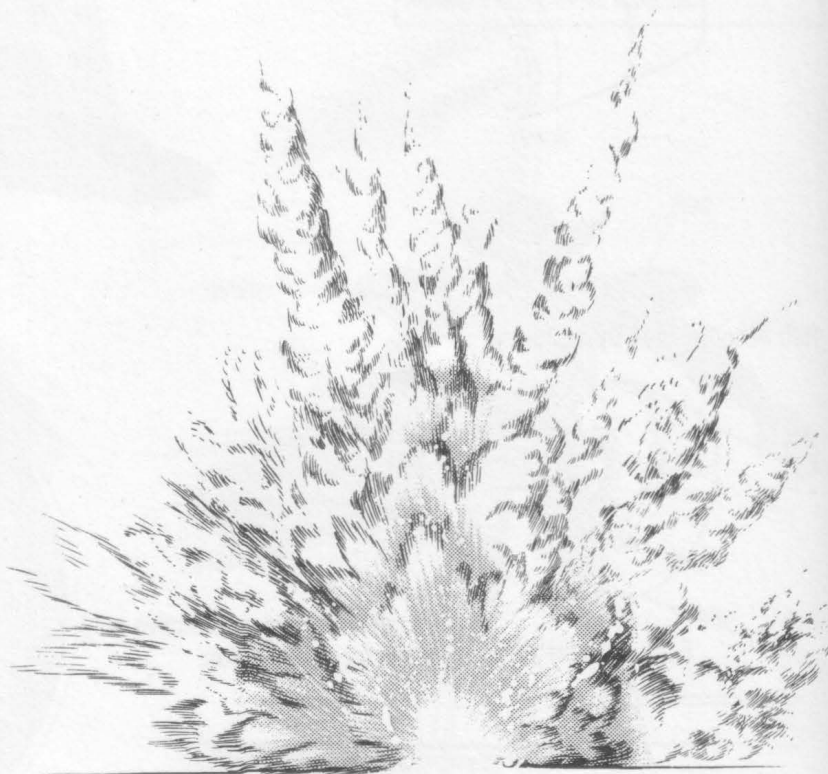
Drawn with free hand



1. Make the smoke look like it emanates from the center of the explosion.

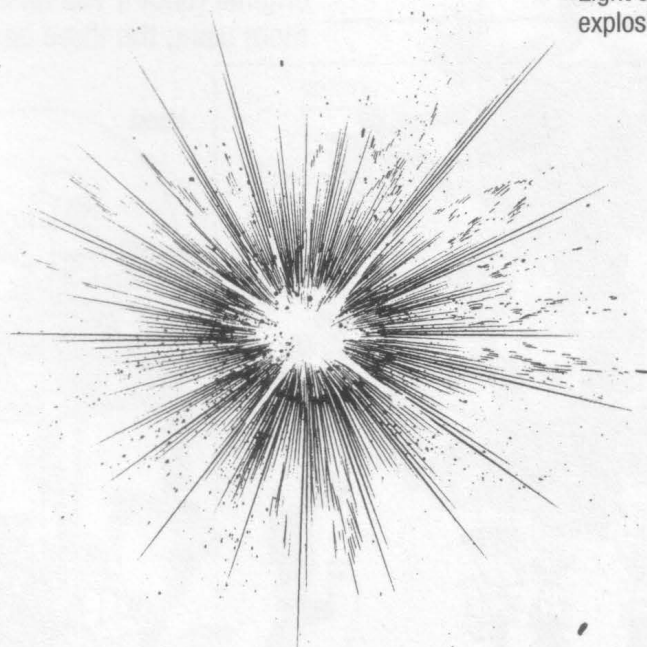


2. Draw with pen. Do not use a ruler.

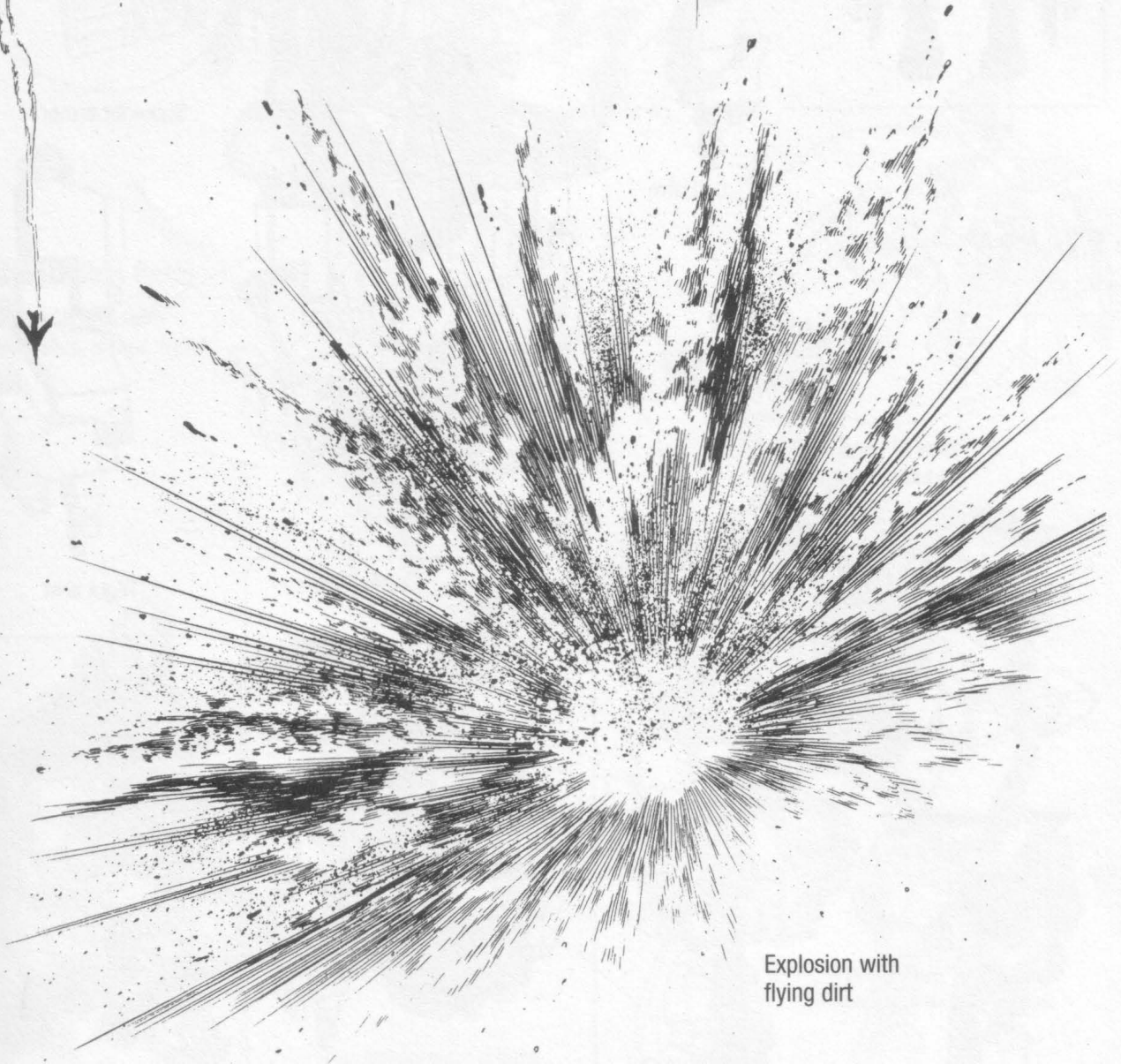
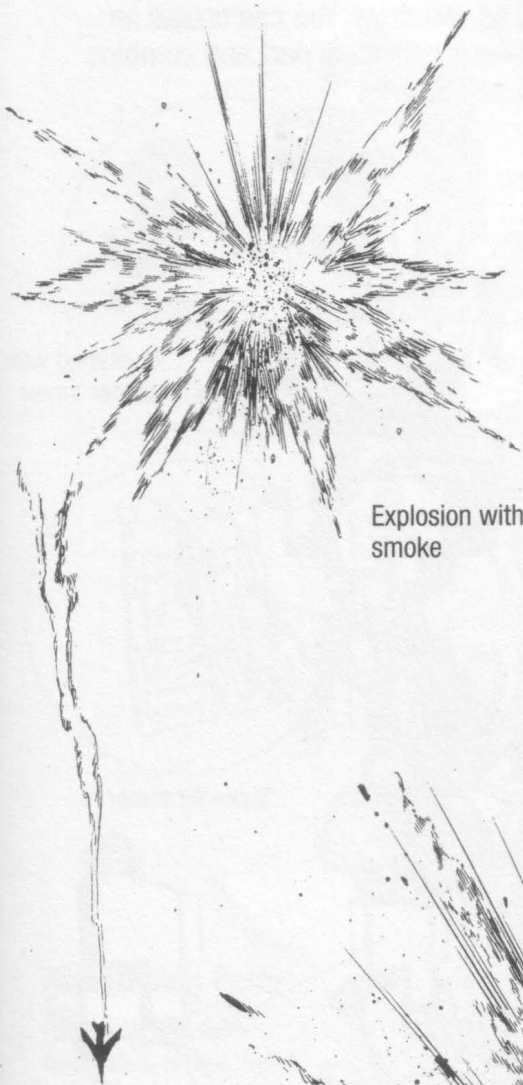


3. In the center use tone etching plus white.

Light at instant of
explosion



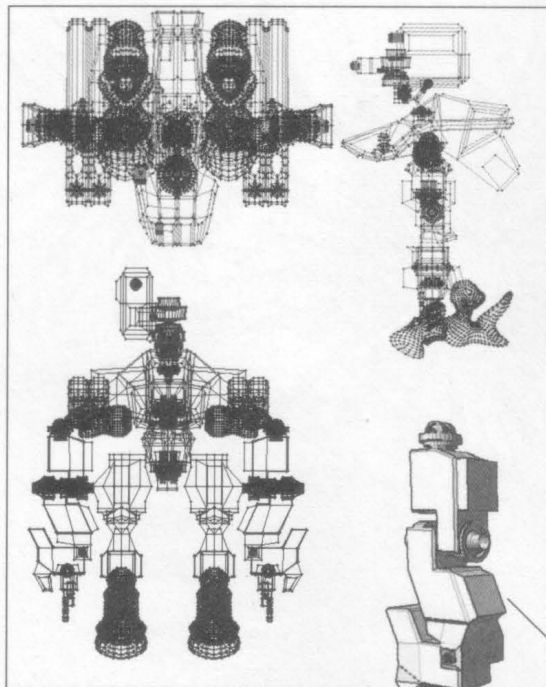
Explosion with
smoke



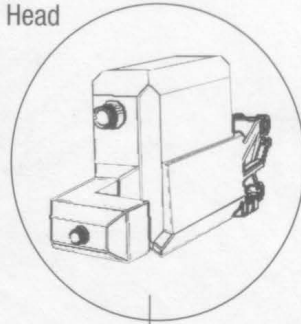
Explosion with
flying dirt

Designing Original Robots

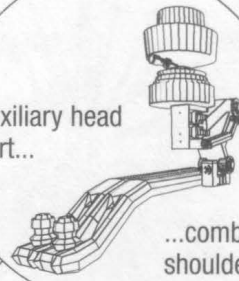
Think about the body parts as you draw. You can create an original robot if you design each individual part and combine them using the three basic views.



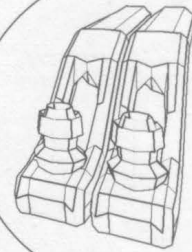
Head



Auxiliary head part...

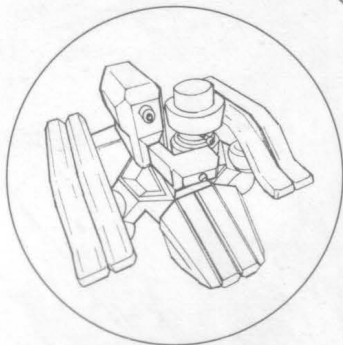


...combined with shoulder armor

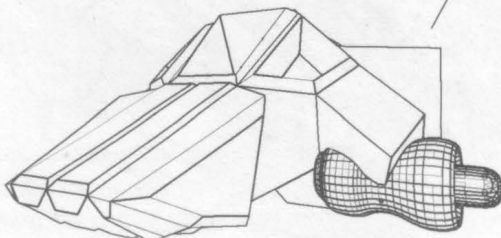


Shoulder armor

Left arm

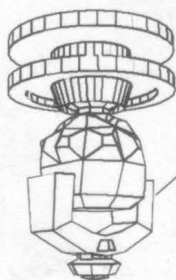
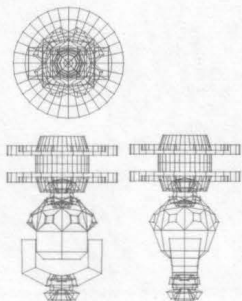


View of head and shoulders from above

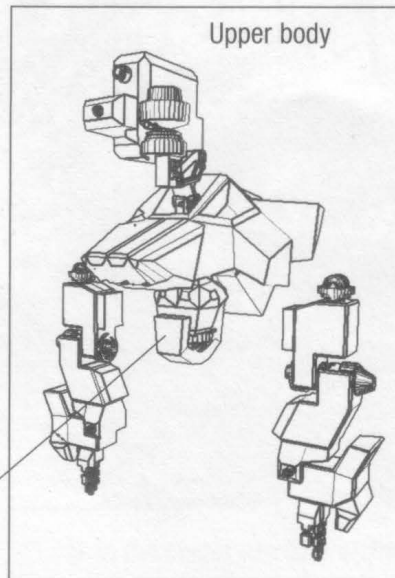


Chest

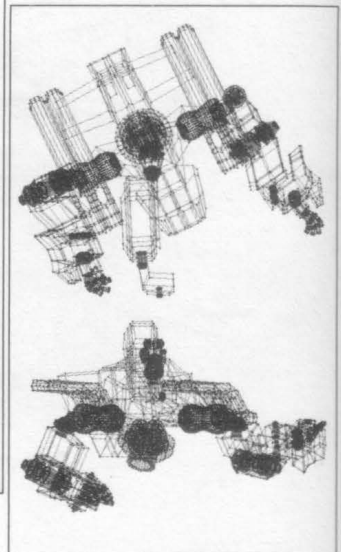
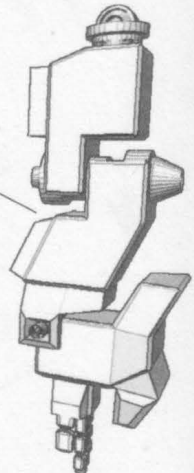
Core/movable unit

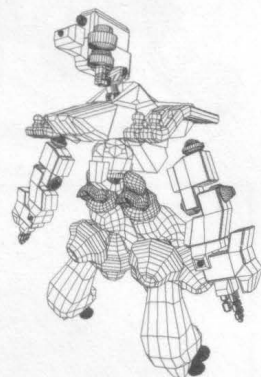
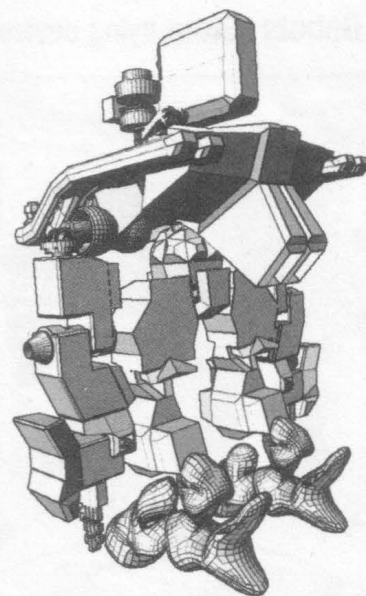
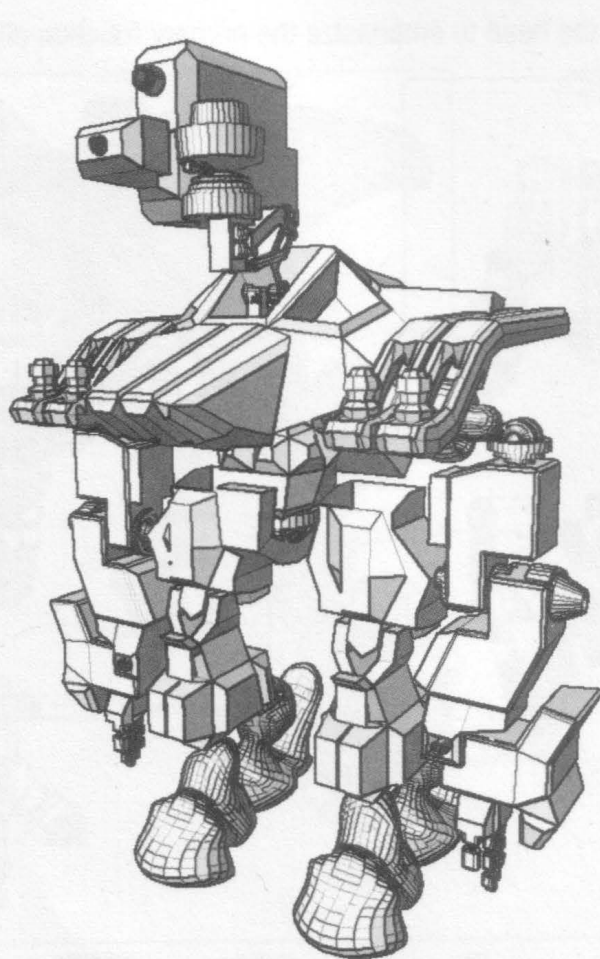


Upper body



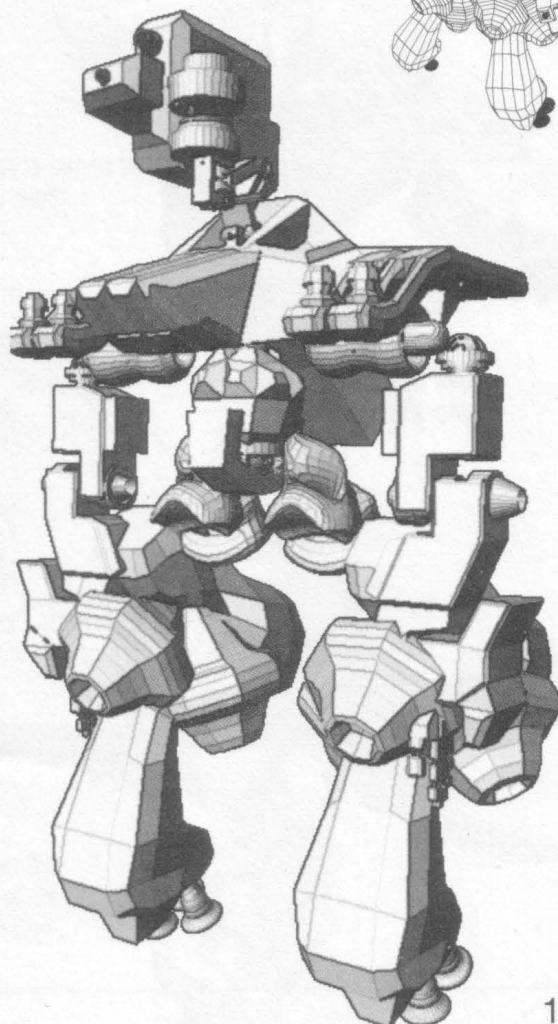
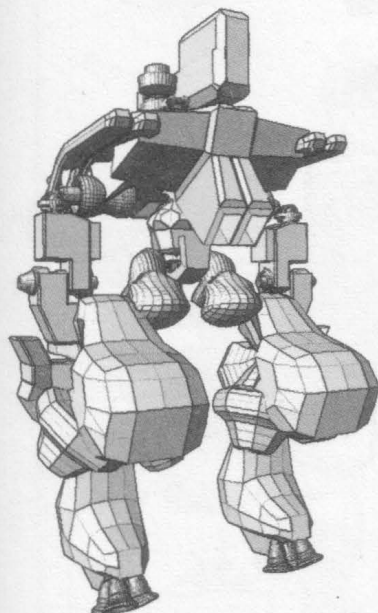
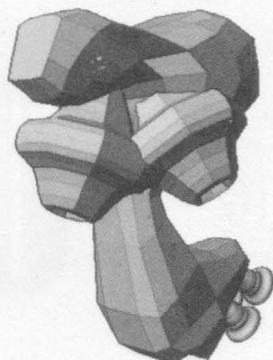
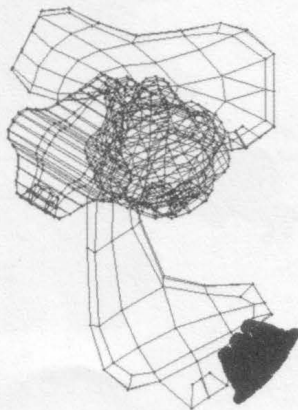
Right arm



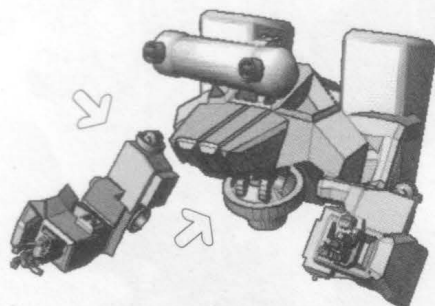
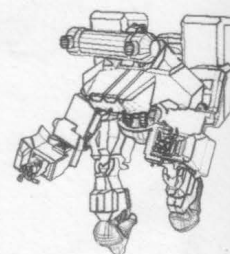
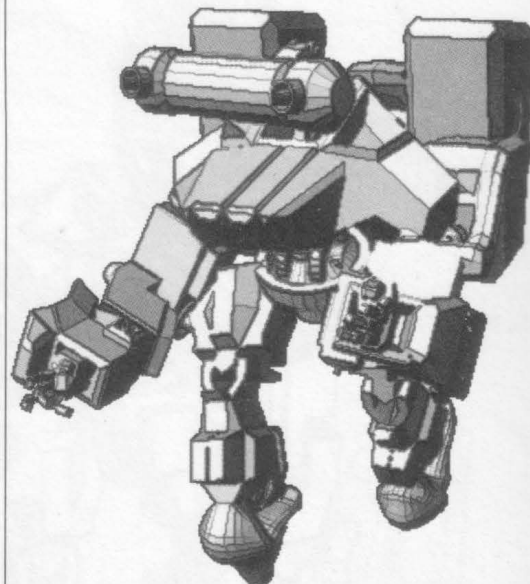
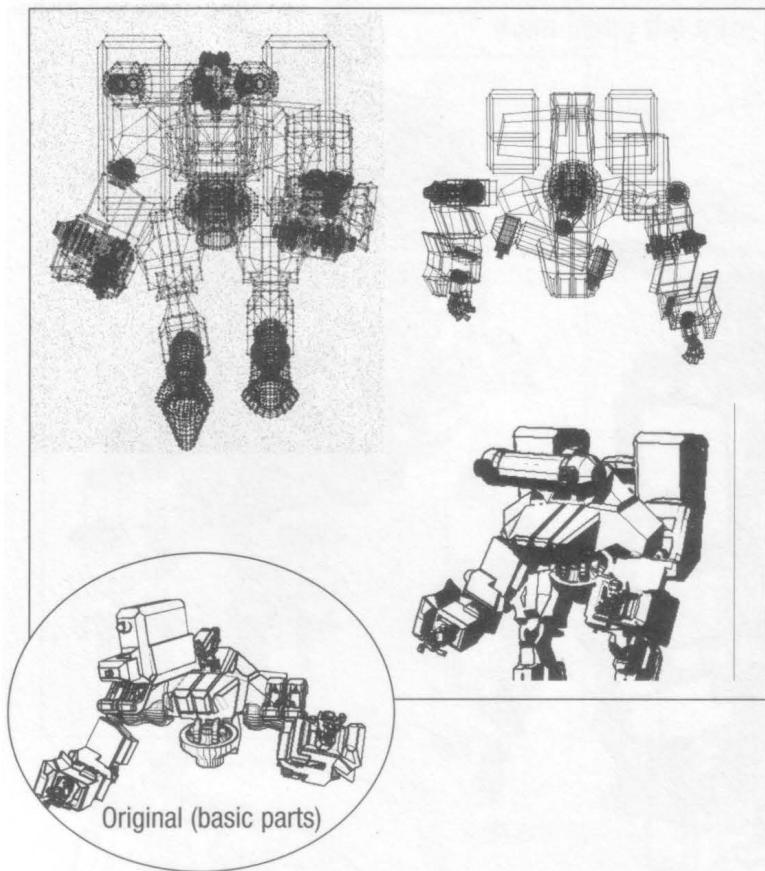


Attach Shin Parts

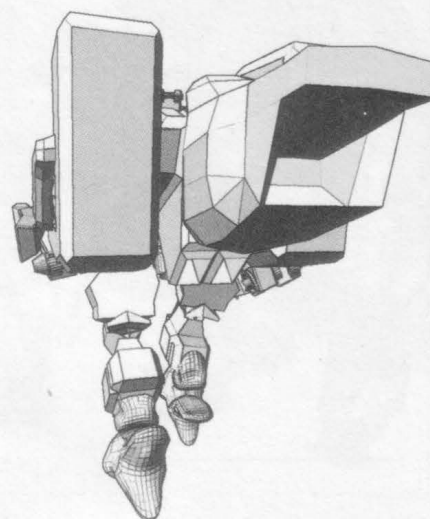
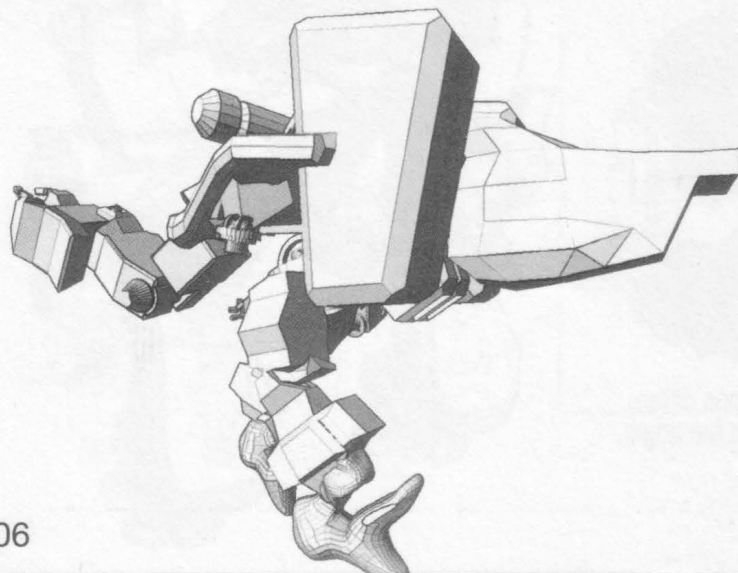
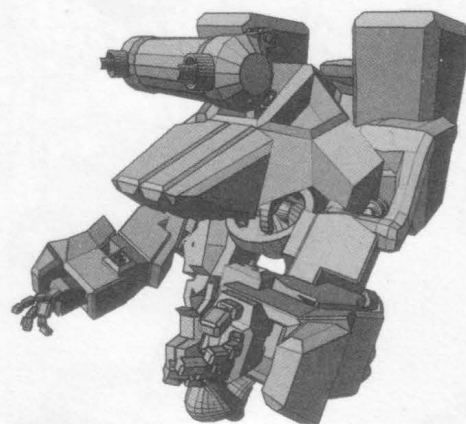
Reinforce legs with hydraulics, armor, flying aids, etc.



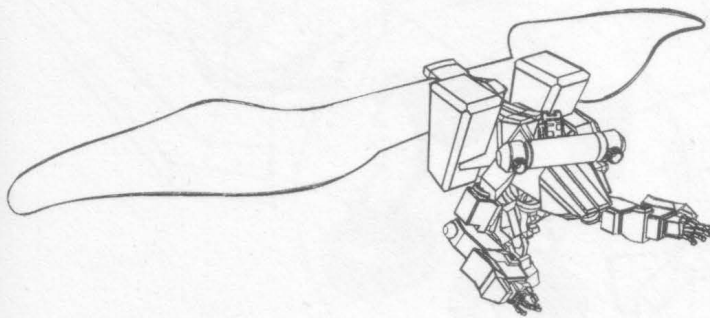
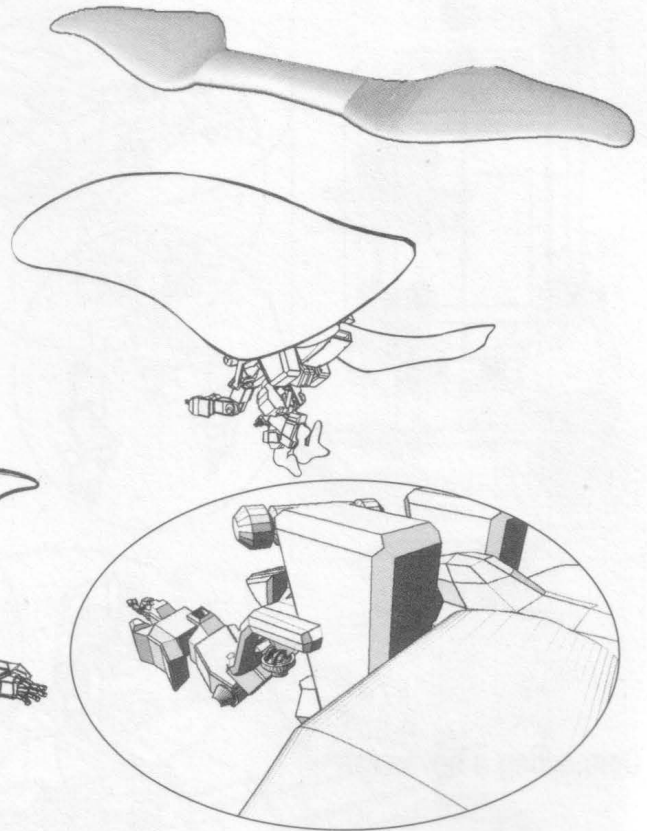
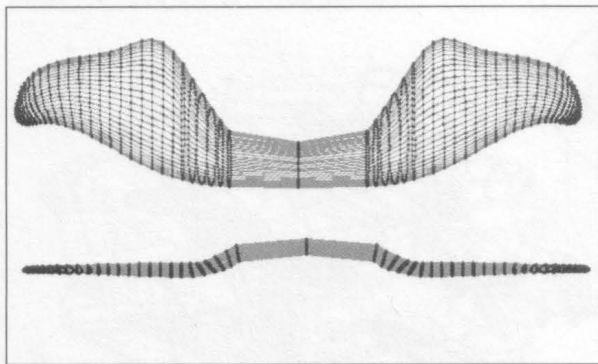
The appearance differs depending on the angle.



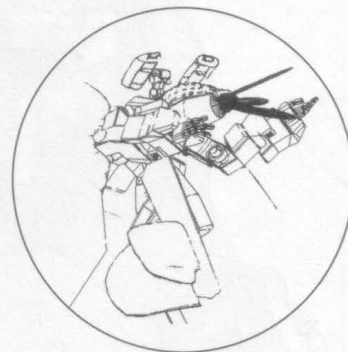
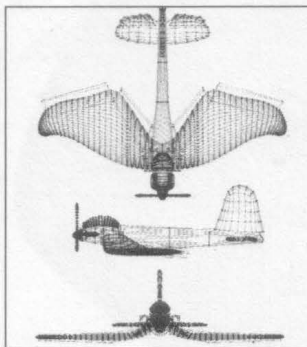
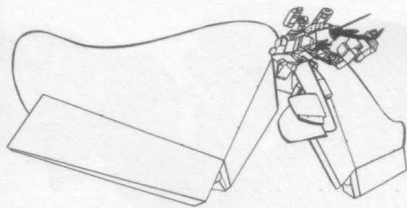
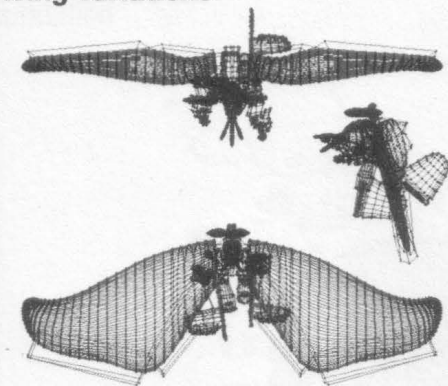
Use basic parts for the
chest and arms.



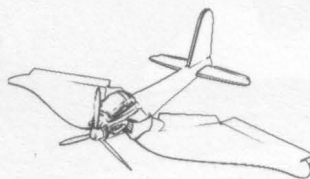
Attach wings



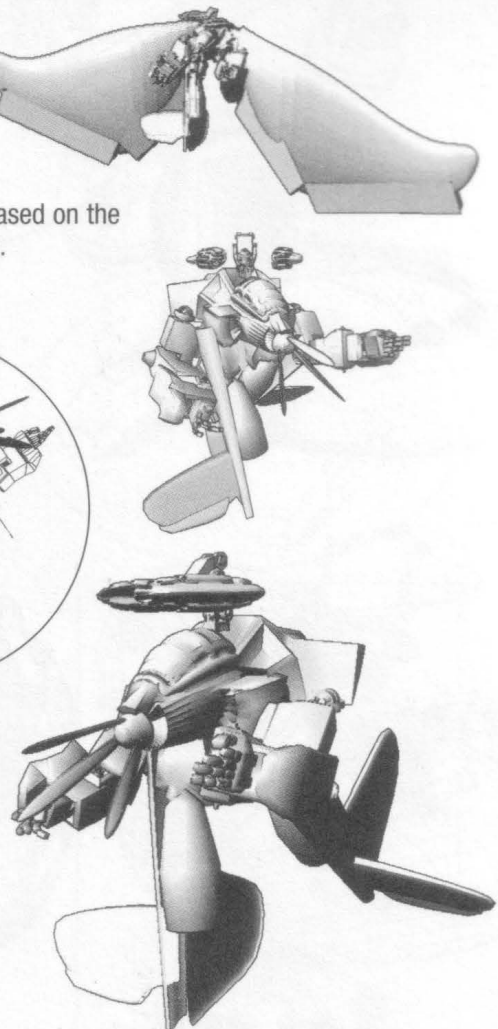
Wing variations



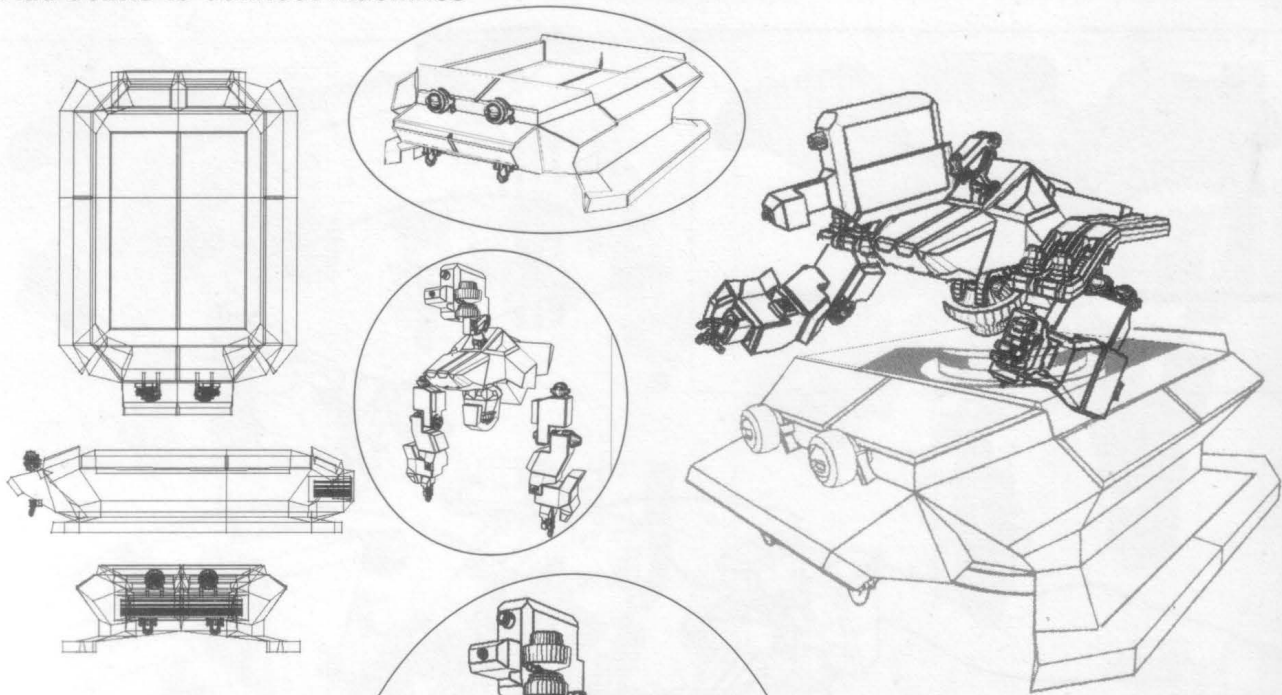
This design is based on the wings of a moth.



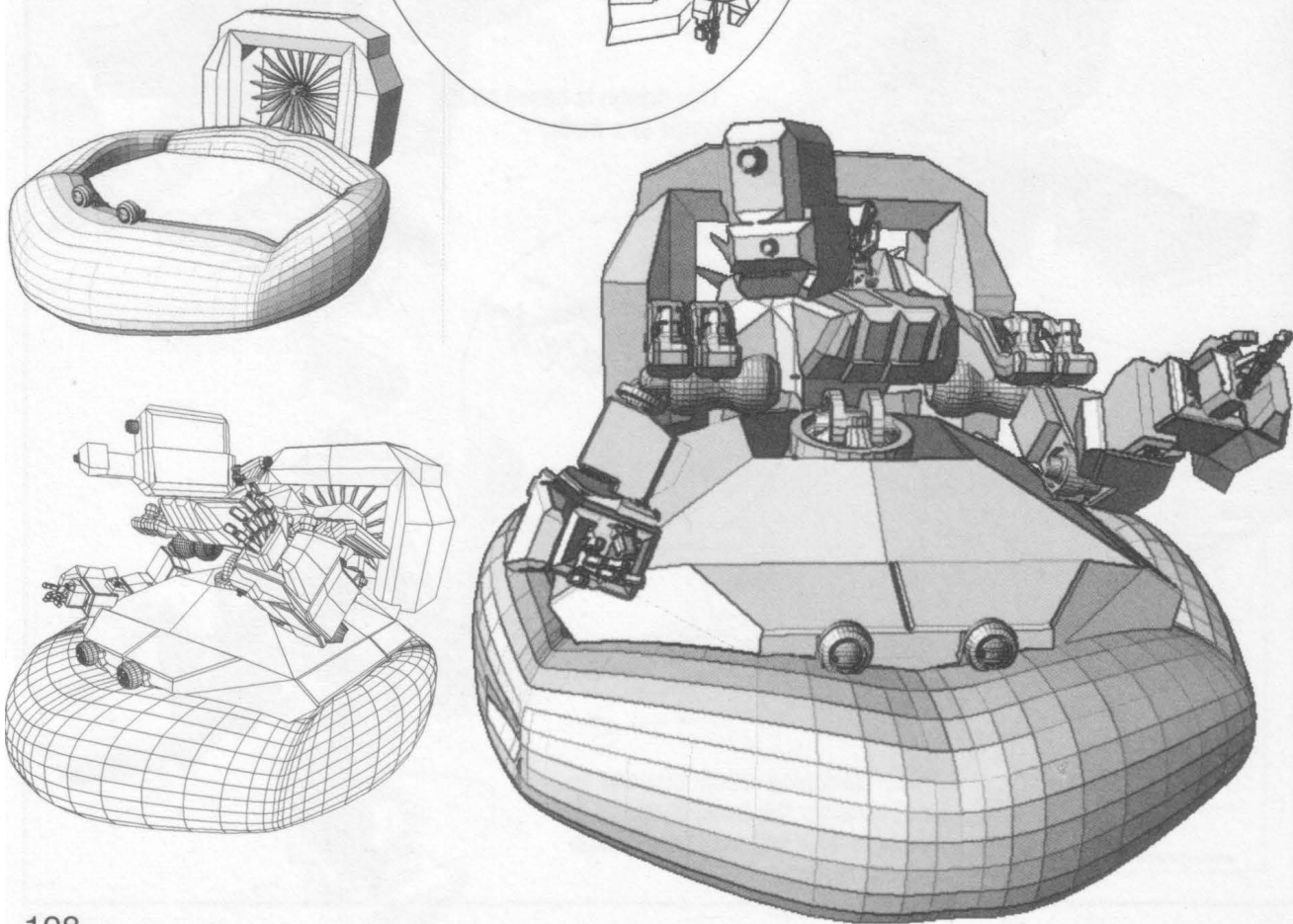
When designing robots that can fly, first consider the basic shape of an airplane. This will make the design appear realistic.



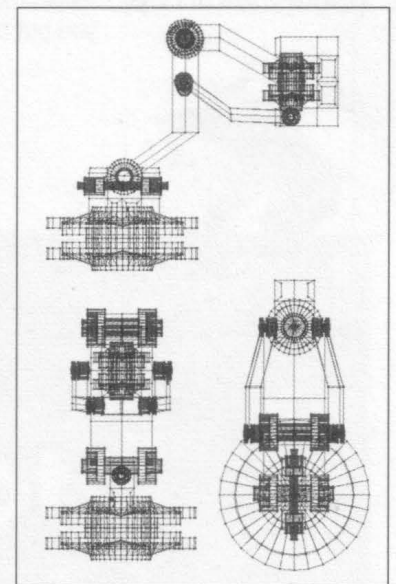
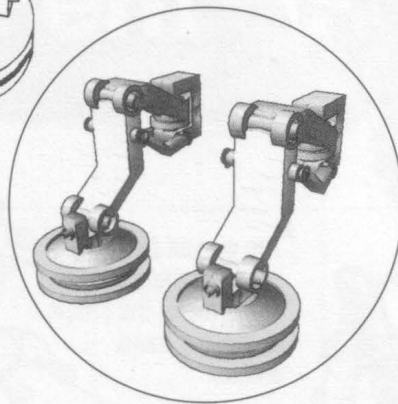
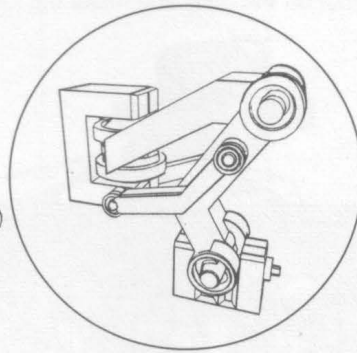
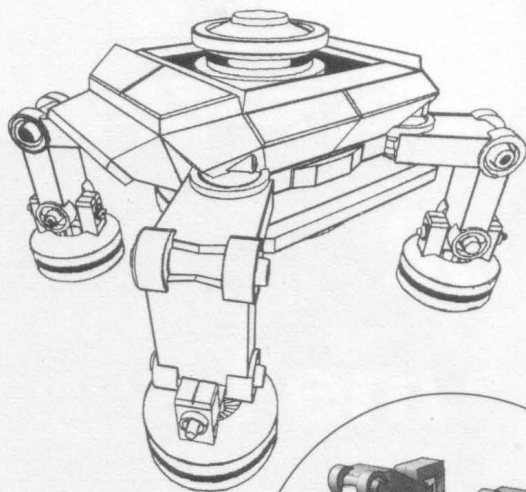
Add Joints to Connect Machines



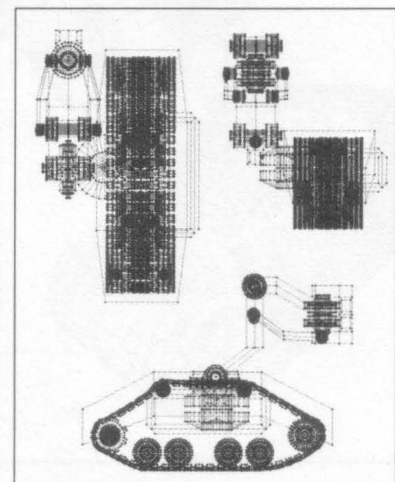
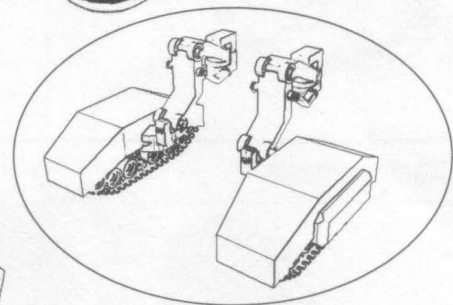
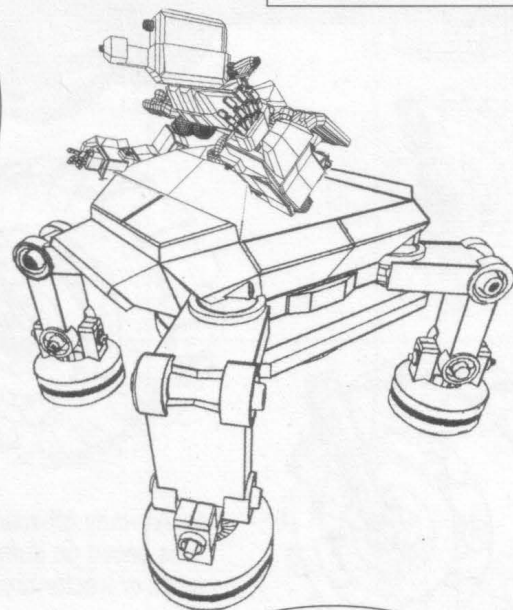
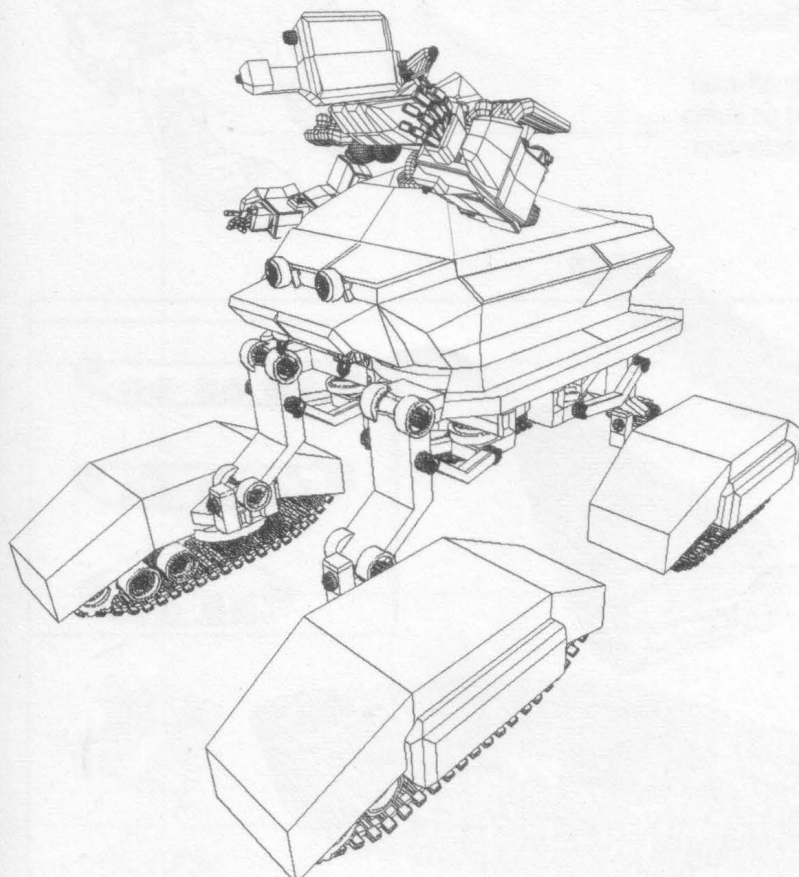
Connecting a hovercraft



Legs connected to a foundation

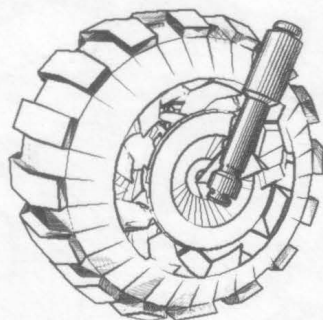
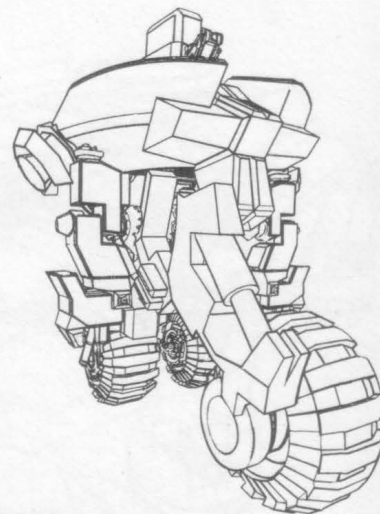
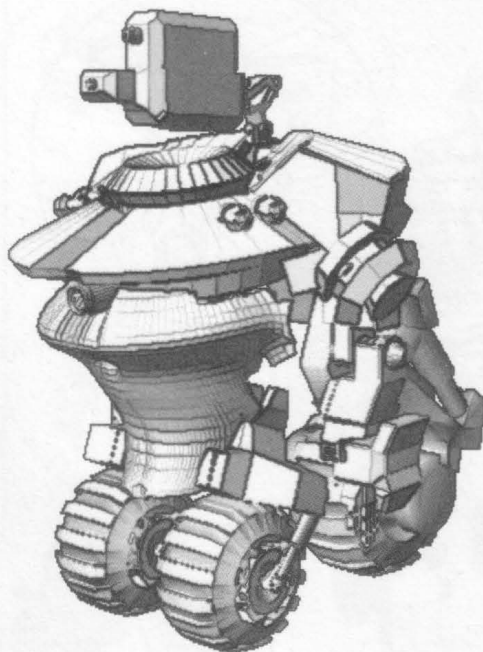
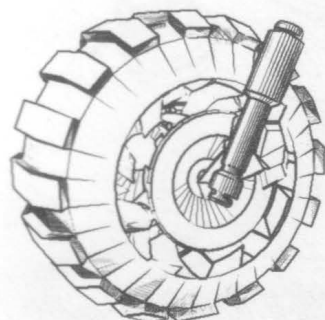
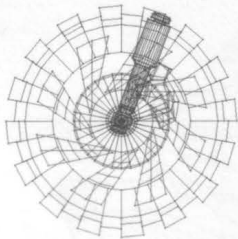
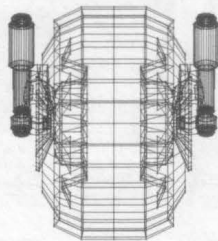
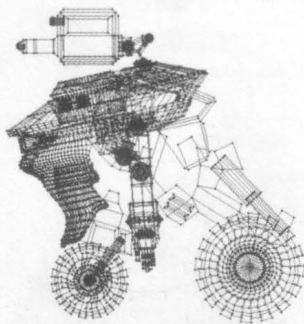


Tractor wheels connected to a foundation



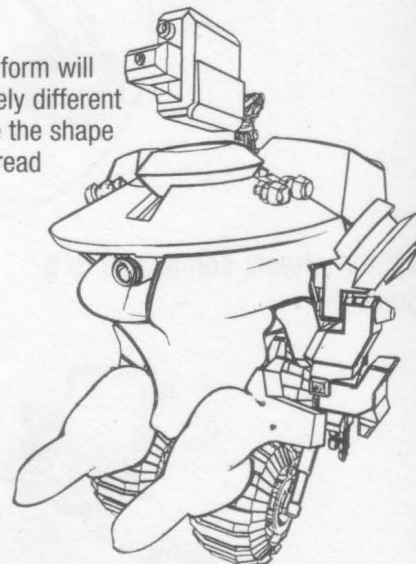
Robots with Tires

Leave the original head and arms. The robot will look like a completely different machine if you put armor on the body and make the lower body a tire mechanism.

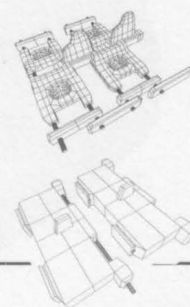
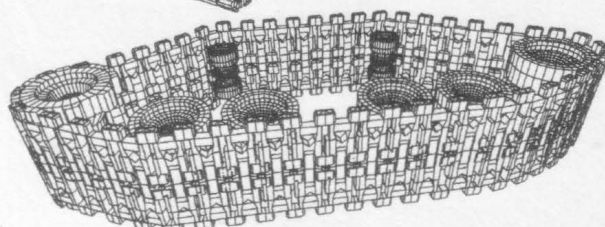
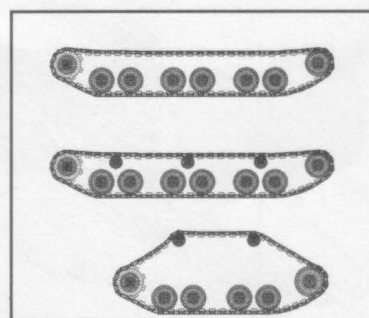
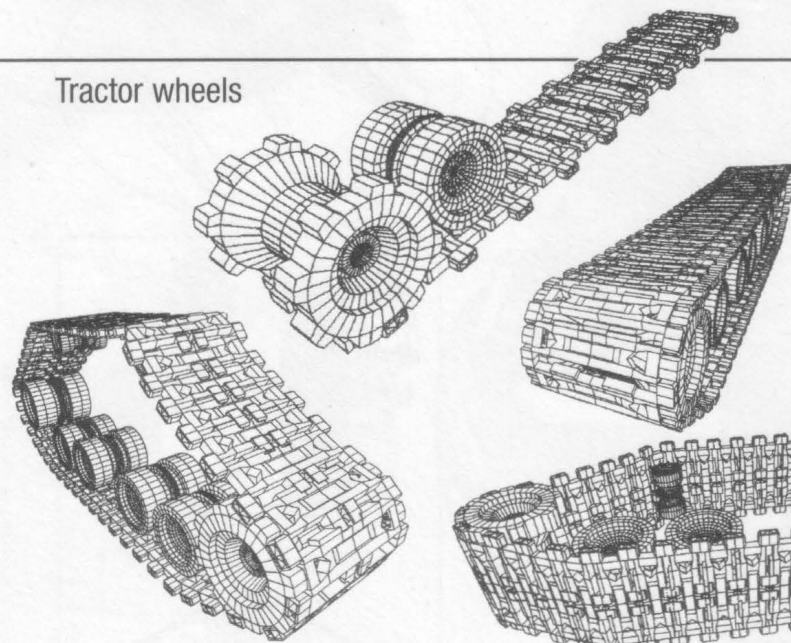


Heavy-duty off-road tires based on dump truck or tractor tires.

The overall form will be completely different if you make the shape of the tire tread unique.



Tractor wheels

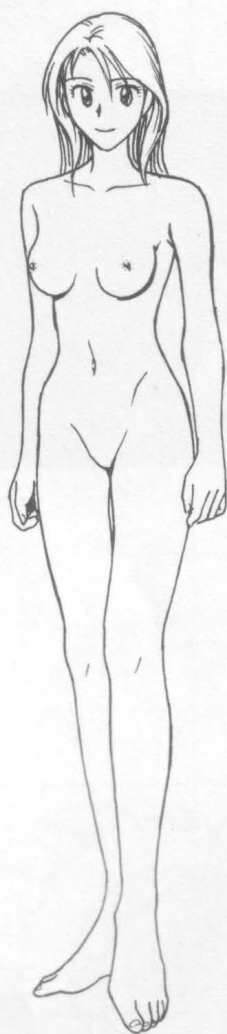


Section 3

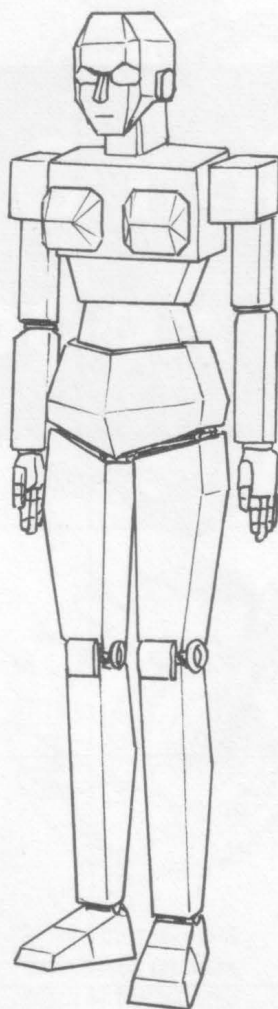
Female Robots

Designing Body Lines

There are two ways to approach deformation of physical characteristics.

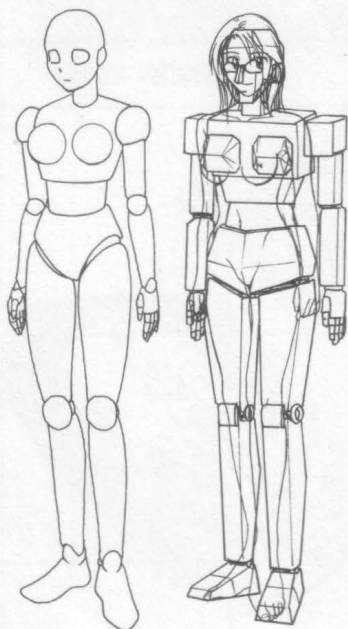
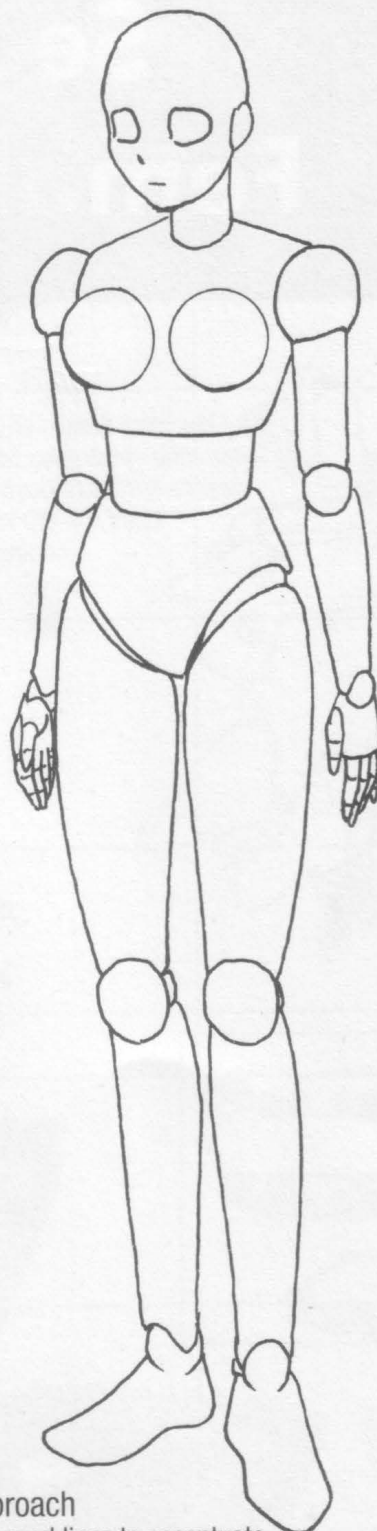


Nude base



Removing roundness

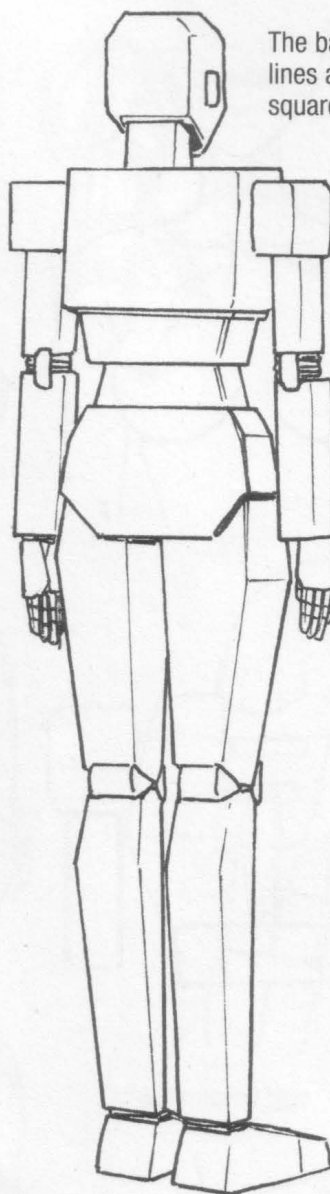
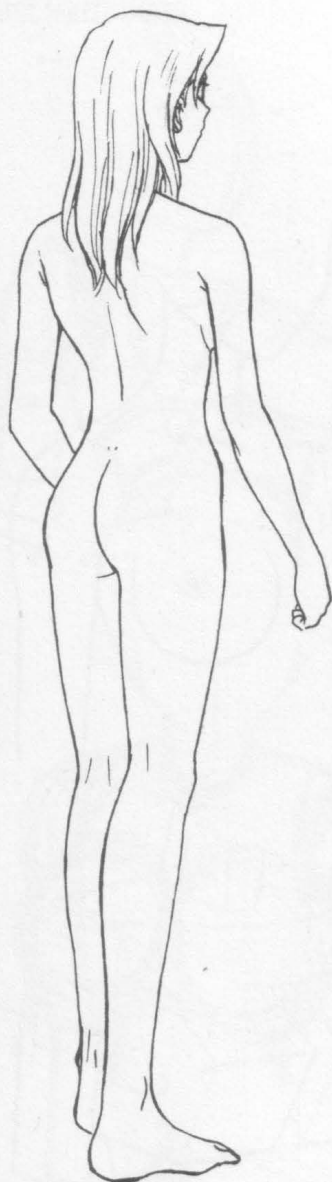
Straight line type. Draw as if the entire body was covered with a combination of iron plates. This creates the look of a classic robot.



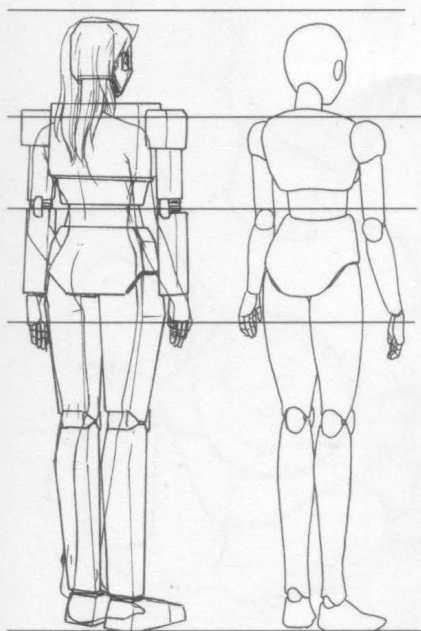
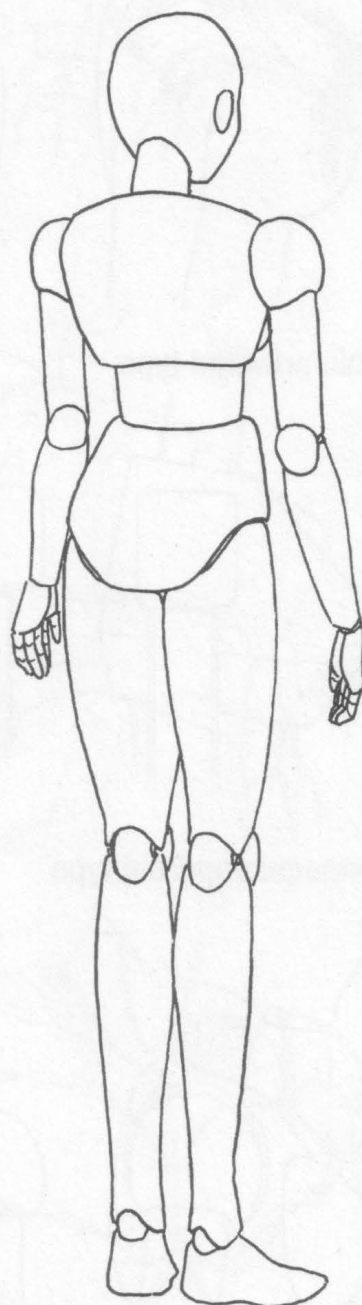
To improve the balance, draw the bust a little higher than it would be in real life.

Curved approach

Use mainly curved lines to accentuate the curved surfaces and roundness of the body. Look at mannequins or figurines for inspiration.



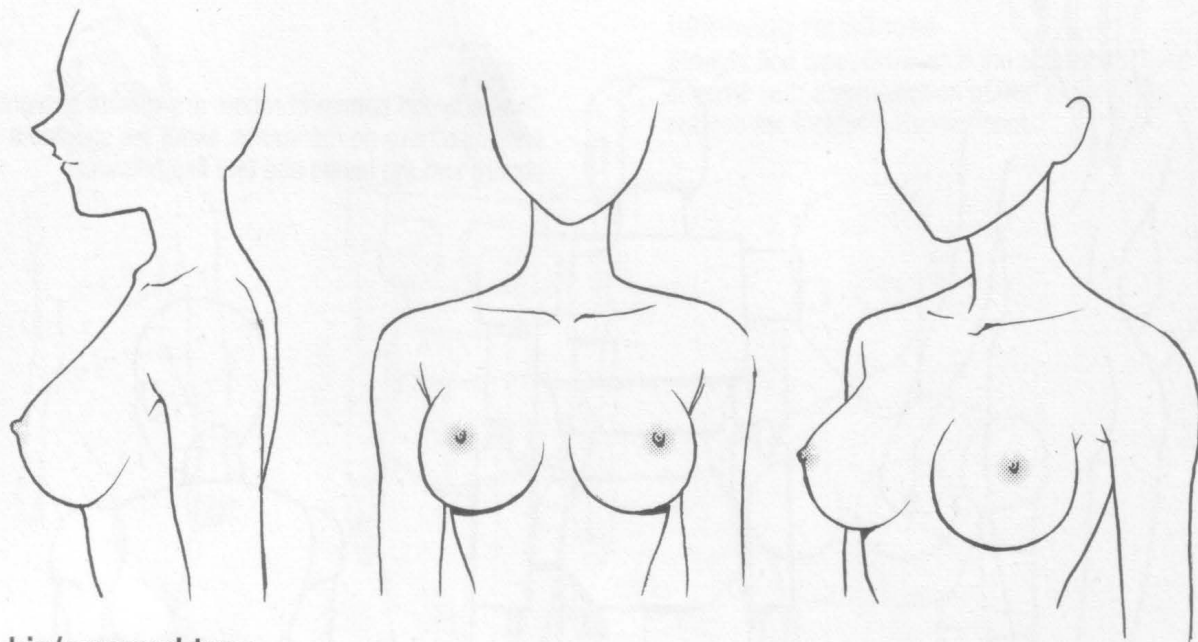
The back and bottom of robots drawn with straight lines also have no roundness. Make the shoulders square and the hands and feet like prisms.



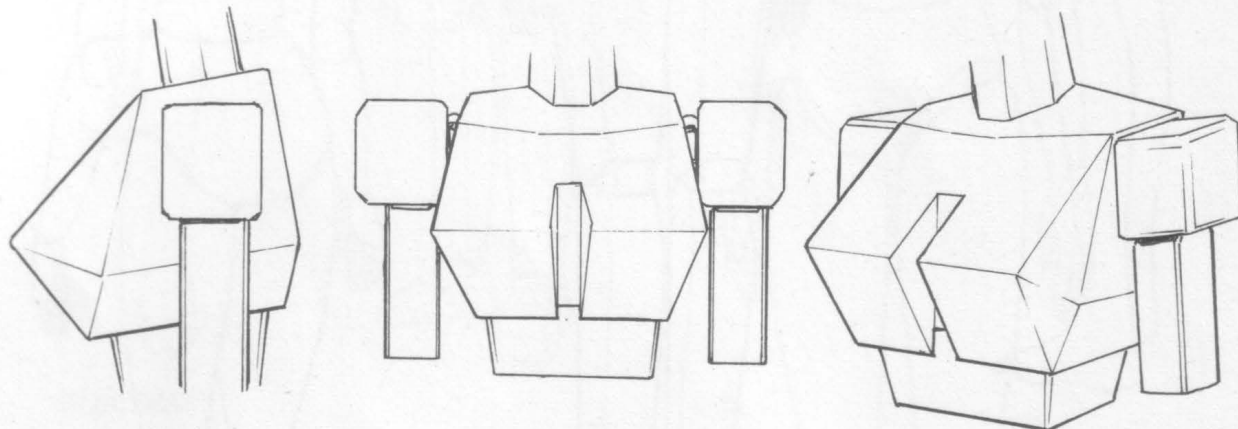
The head of a robot with no hair will look small, so raise the shoulders, hips and bottom to improve the balance.

The curved type resembles an artist's sketching mannequin. For a basic design, make the joints and movable parts simple spheres.

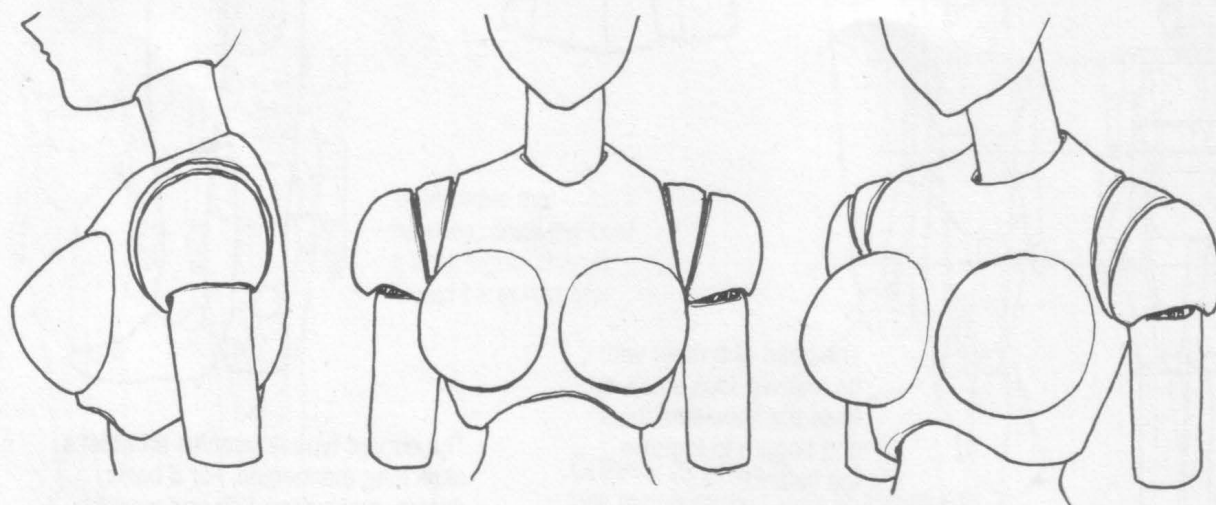
Human



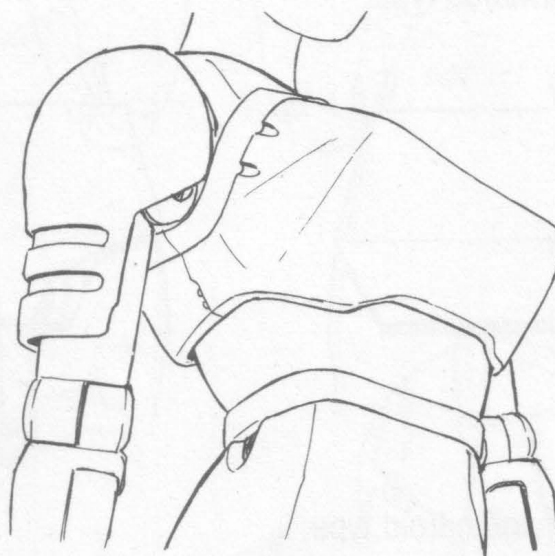
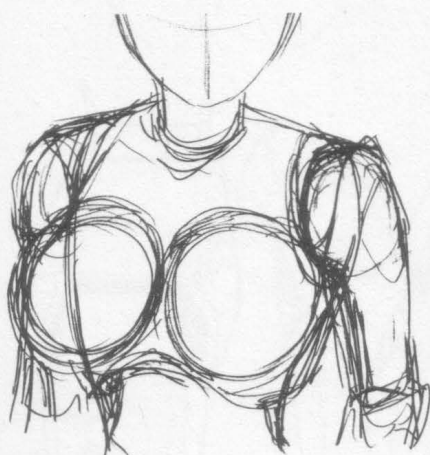
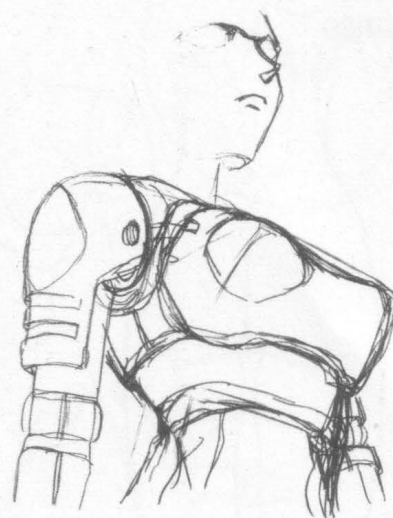
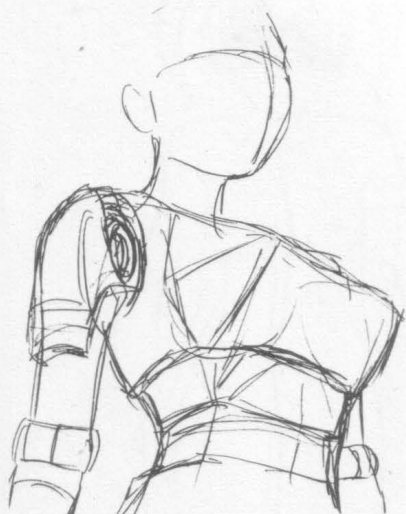
Cubic/armored type



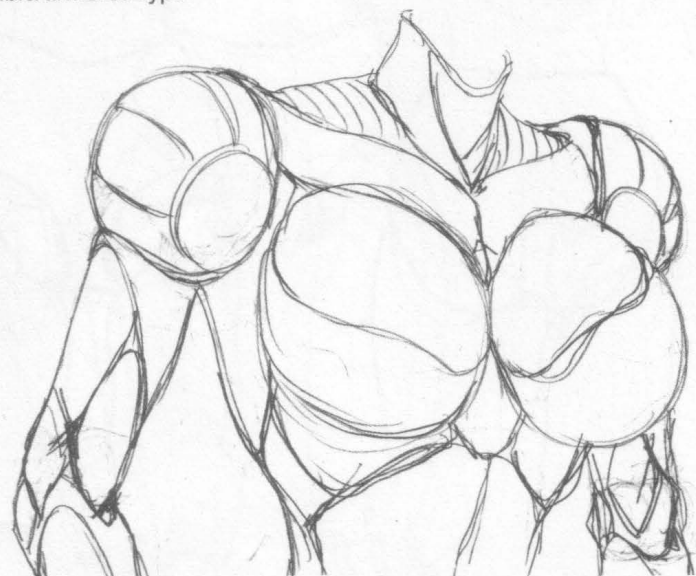
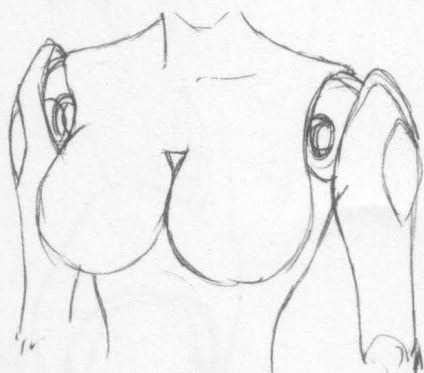
Mannequin/android type



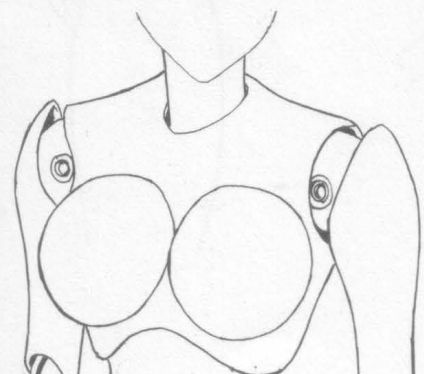
Bust Variations



Cubic/armored type



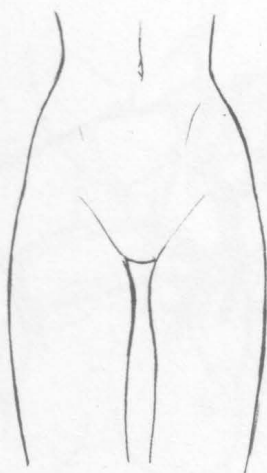
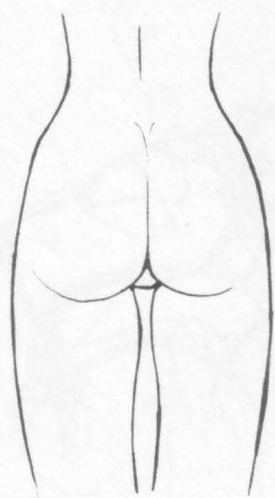
Muscled/biometallic type



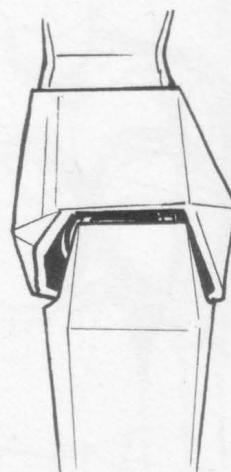
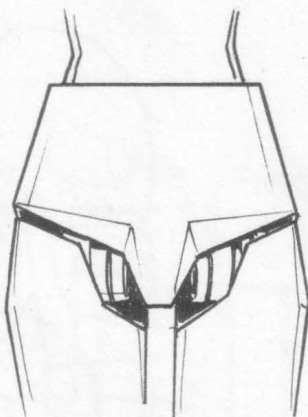
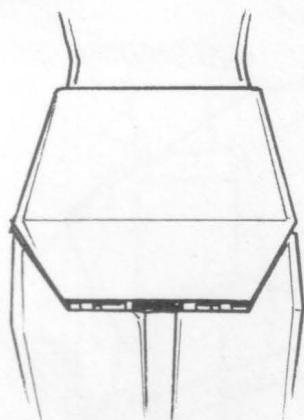
Simple mannequin type

Designing Bottoms

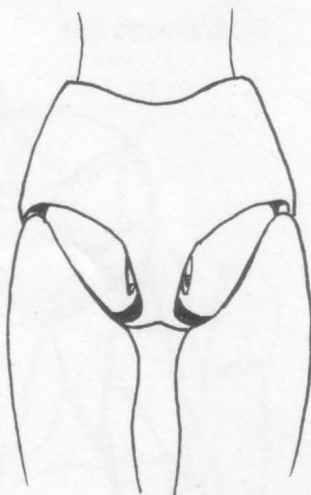
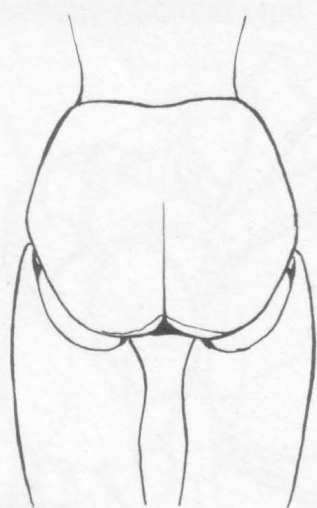
Human

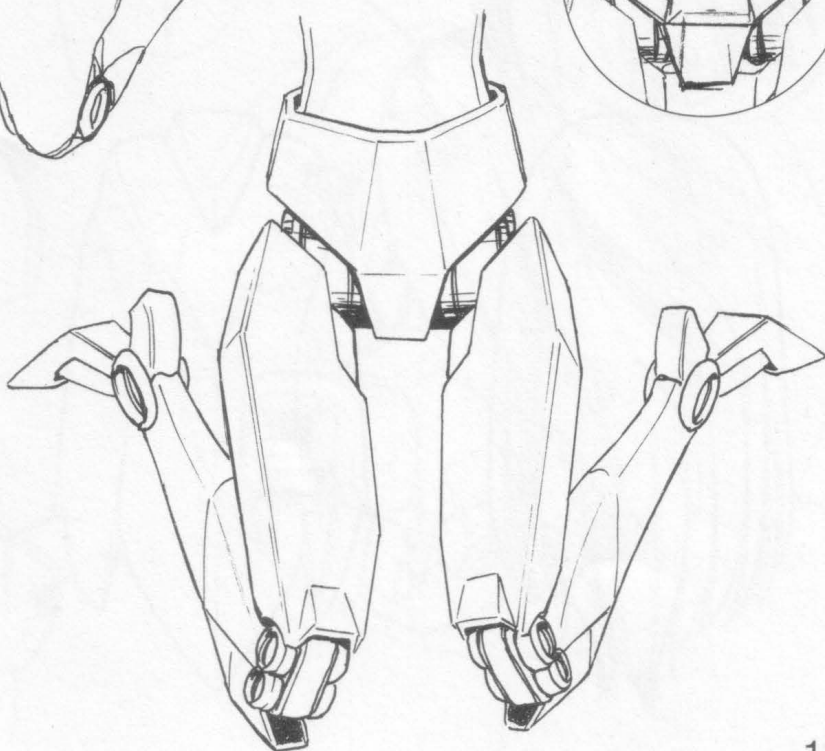
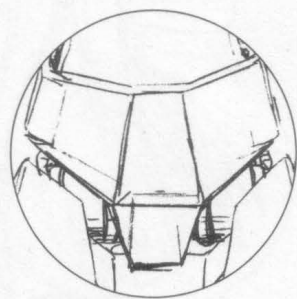
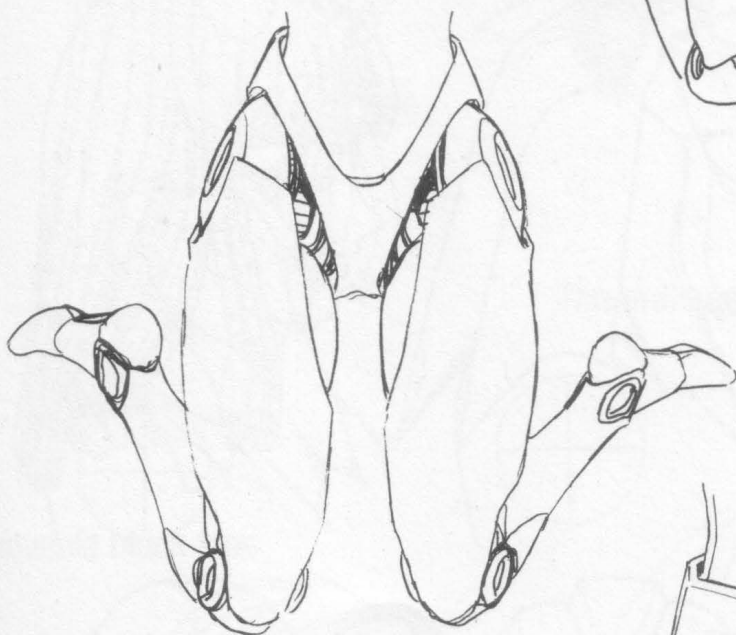
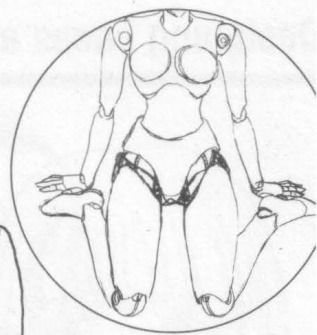
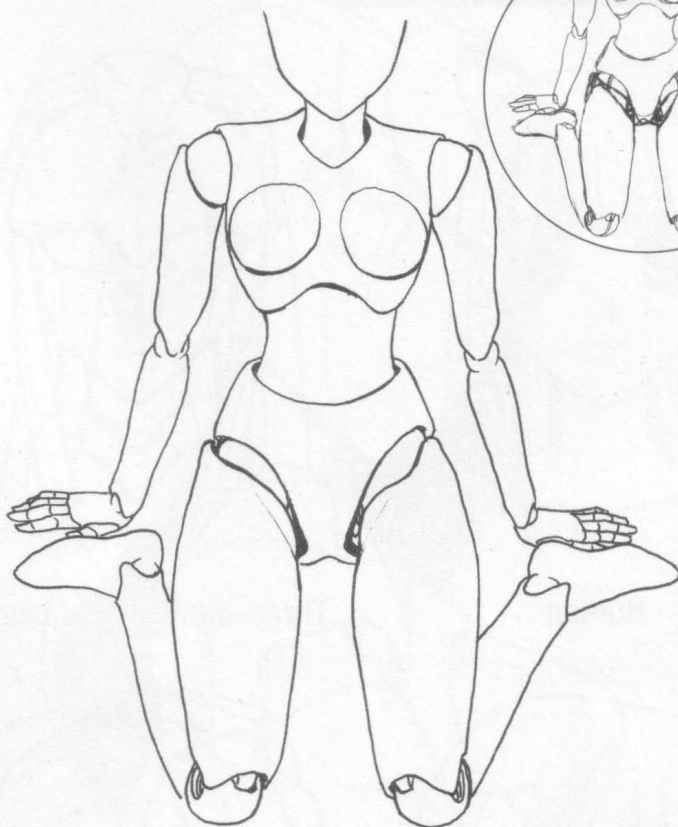


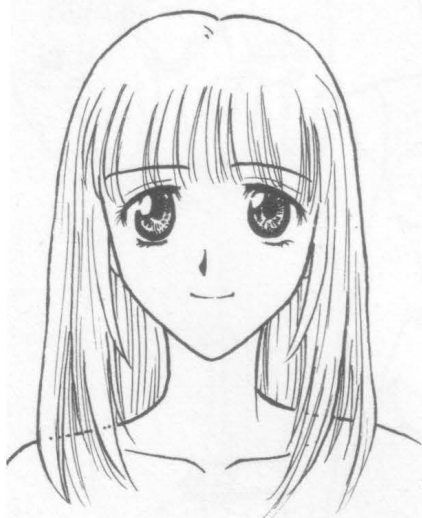
Cubic/armored type



Mannequin/android type



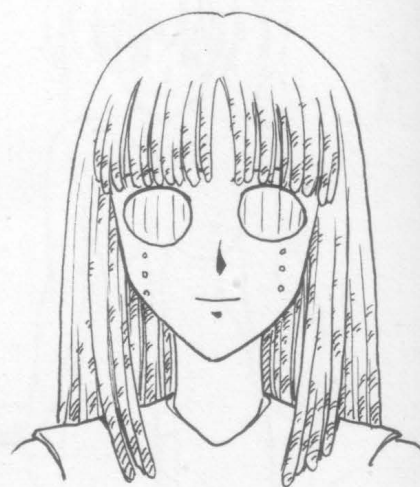




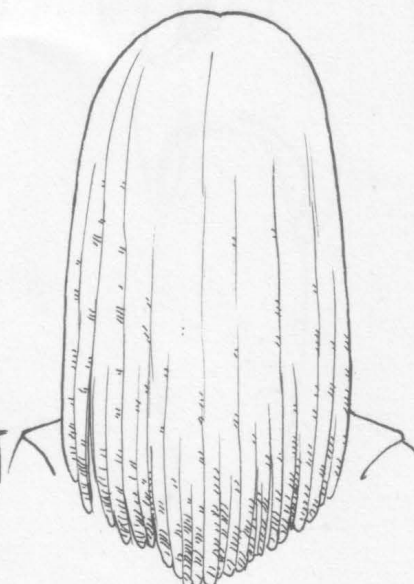
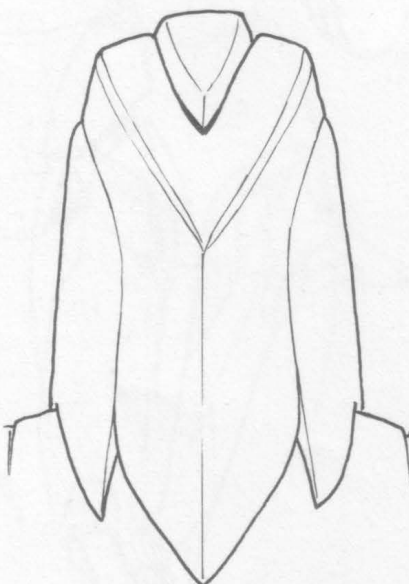
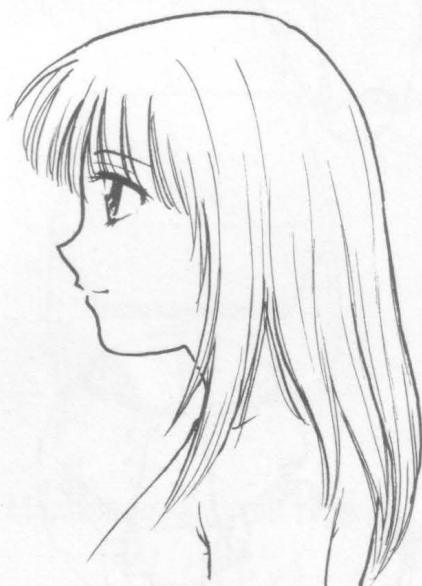
Human



Three-dimensional cast type



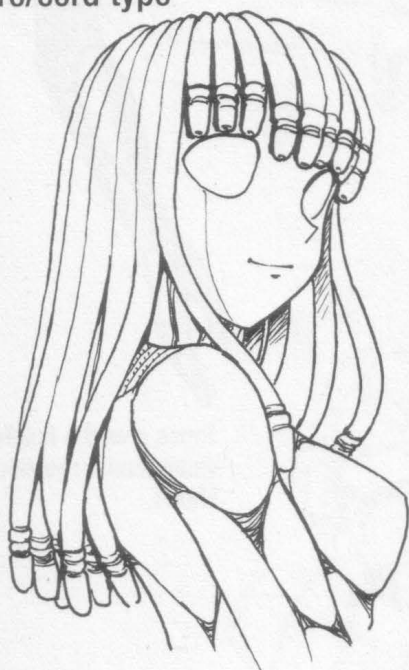
Wire/cord type



Human



Wire/cord type



Movable block type

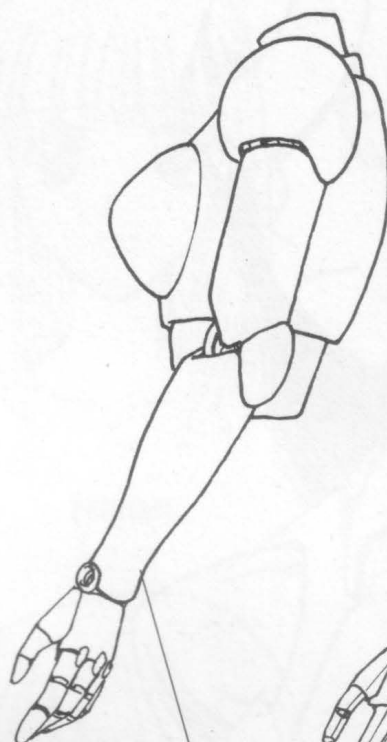


Three-dimensional cast type



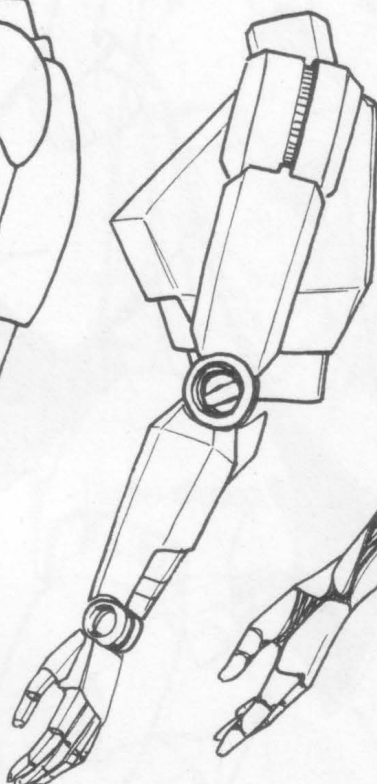
Designing Body Parts

Mannequin block type

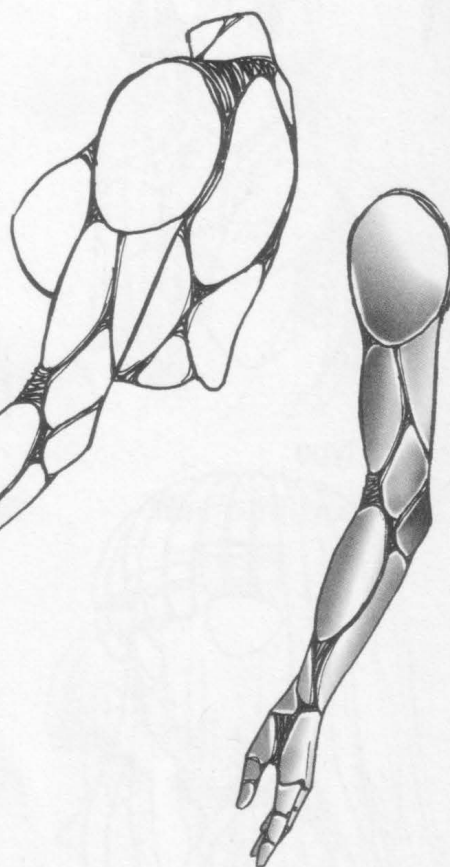


Think of a metallic cylinder.

Robot-like prism type

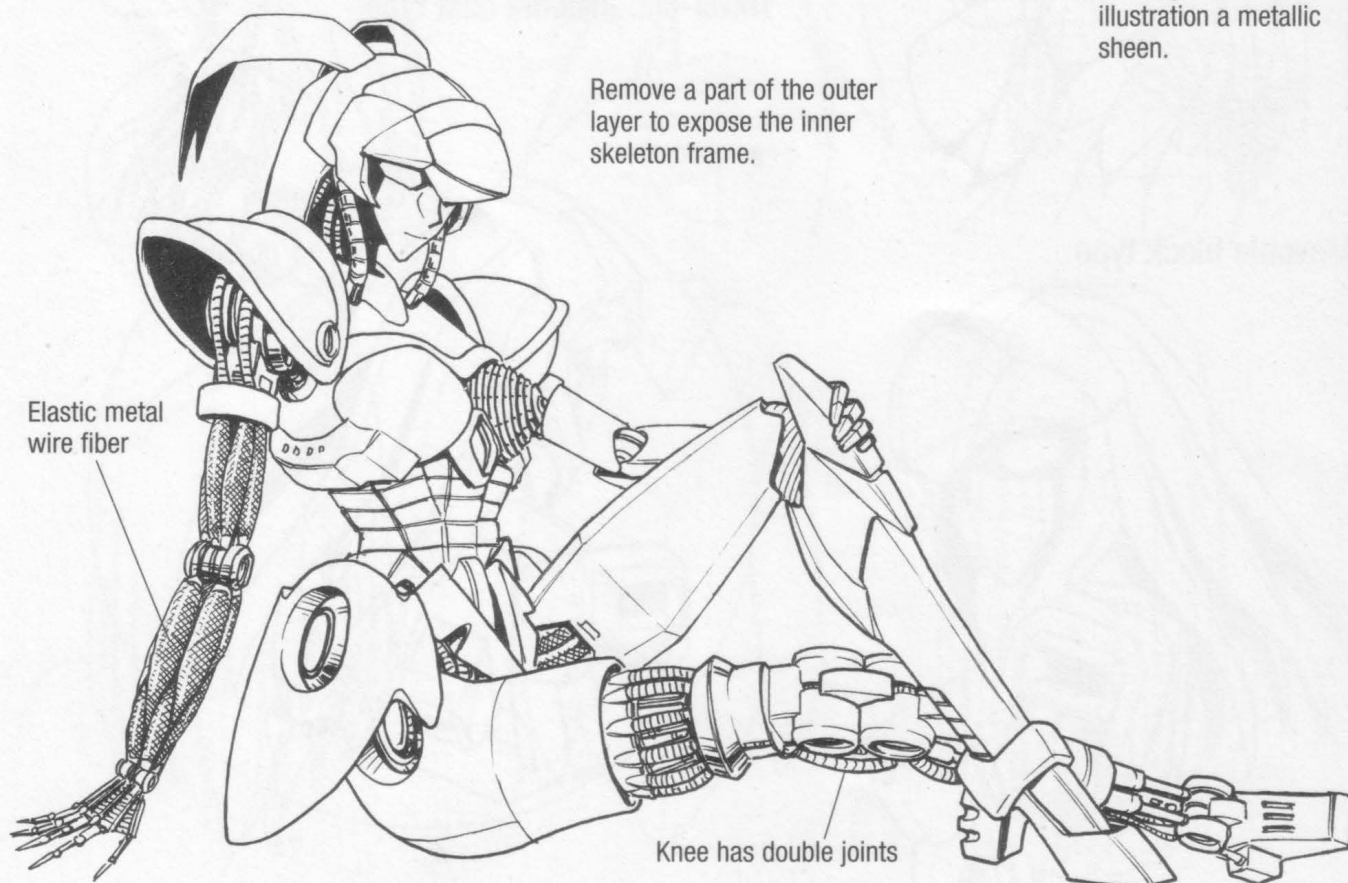


Metallic muscle type



Tones give the finished illustration a metallic sheen.

Remove a part of the outer layer to expose the inner skeleton frame.



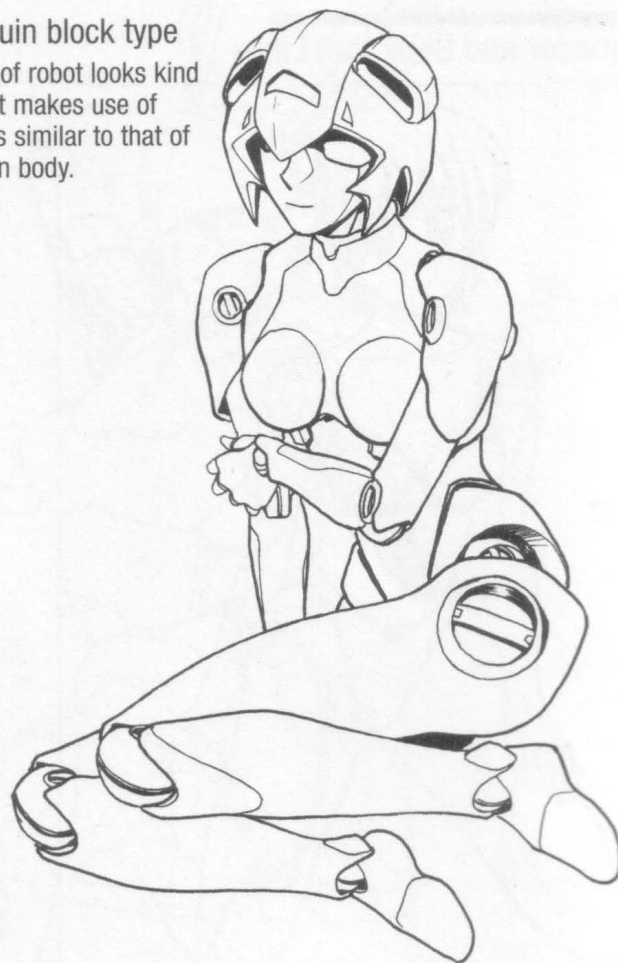
Elastic metal wire fiber

Knee has double joints



Mannequin block type

This type of robot looks kind because it makes use of roundness similar to that of the human body.



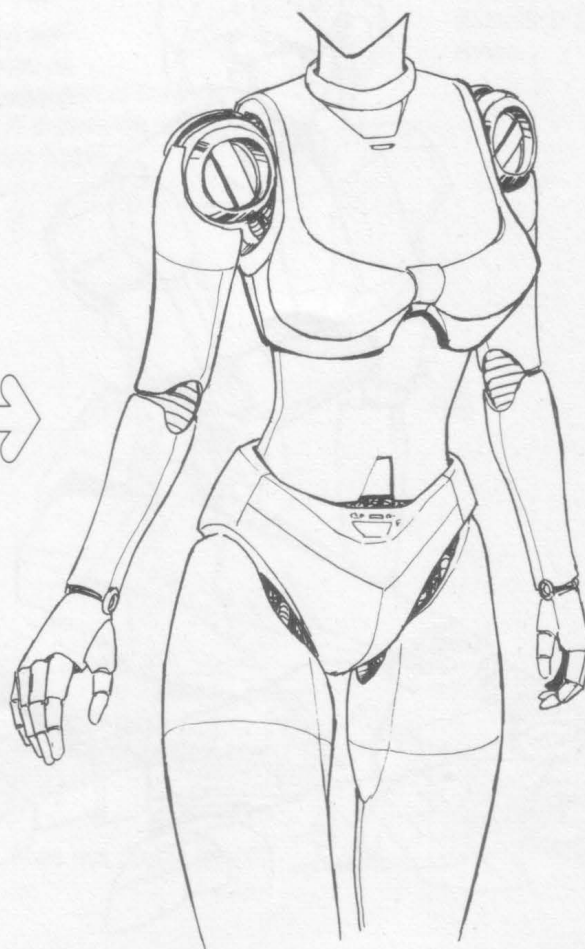
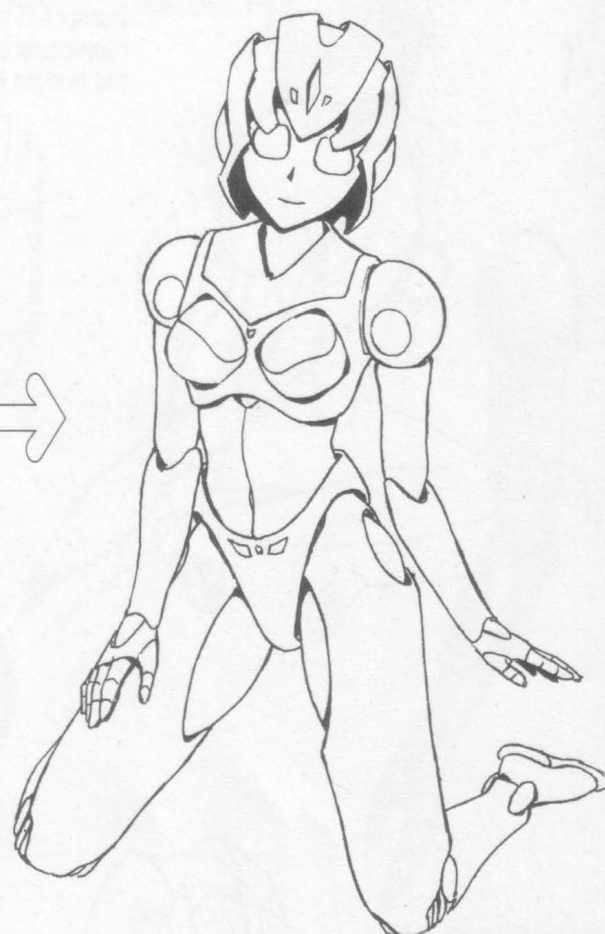
Robot-like prism type

This type of robot looks like an unrefined machine covered with metal plates.

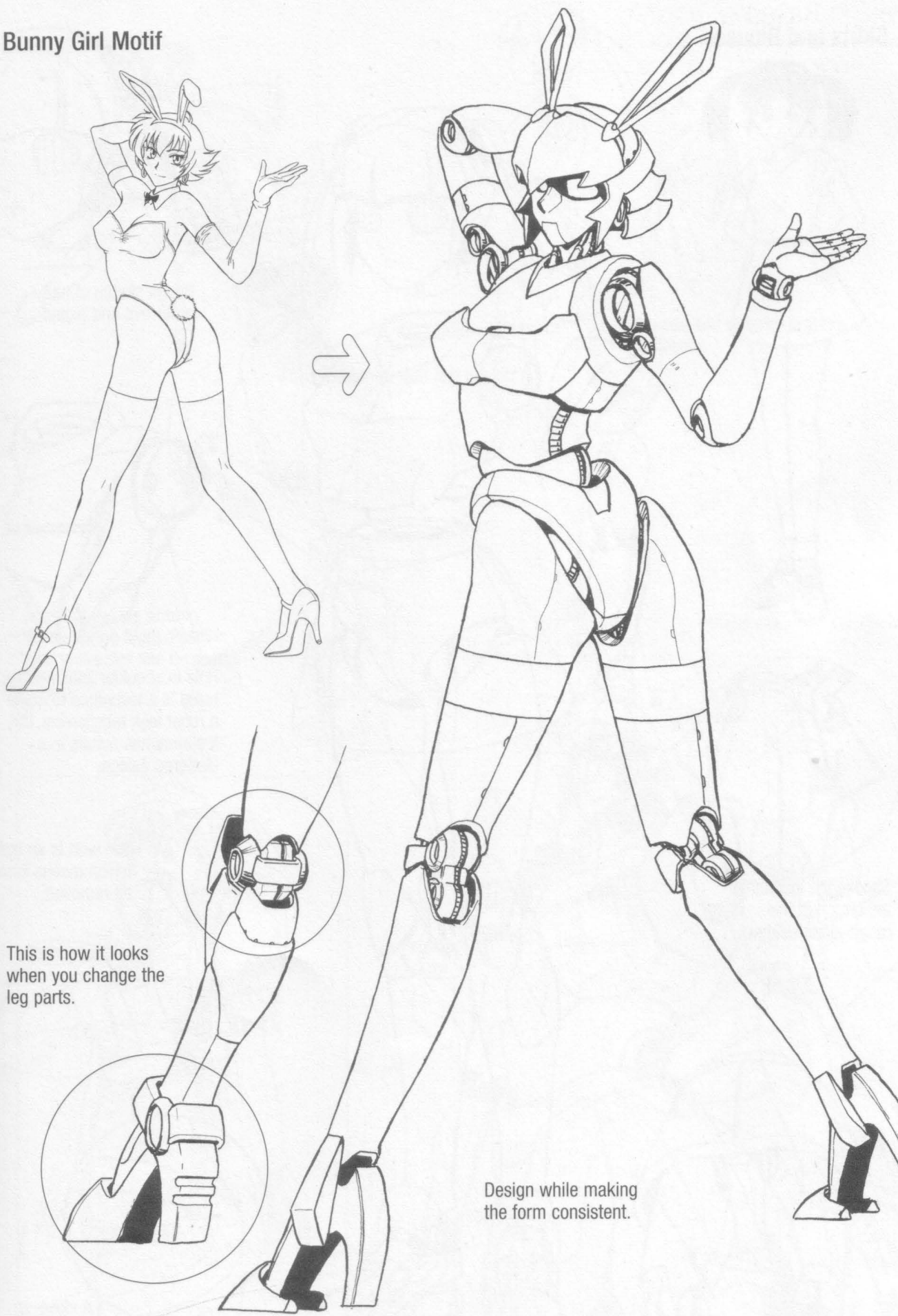


Design Based on Fashion

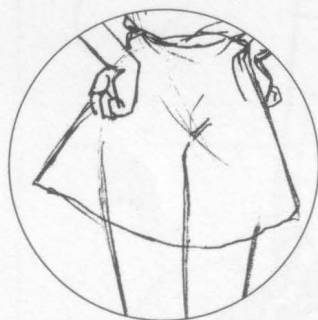
Underwear and Body Suit Lines



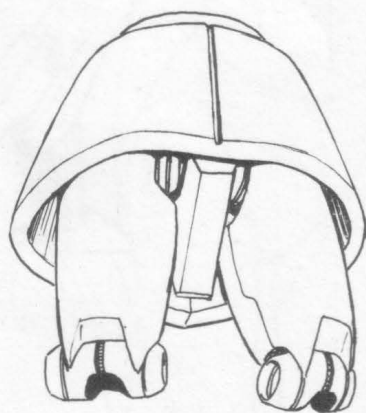
Bunny Girl Motif



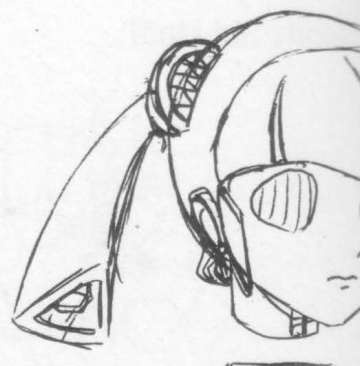
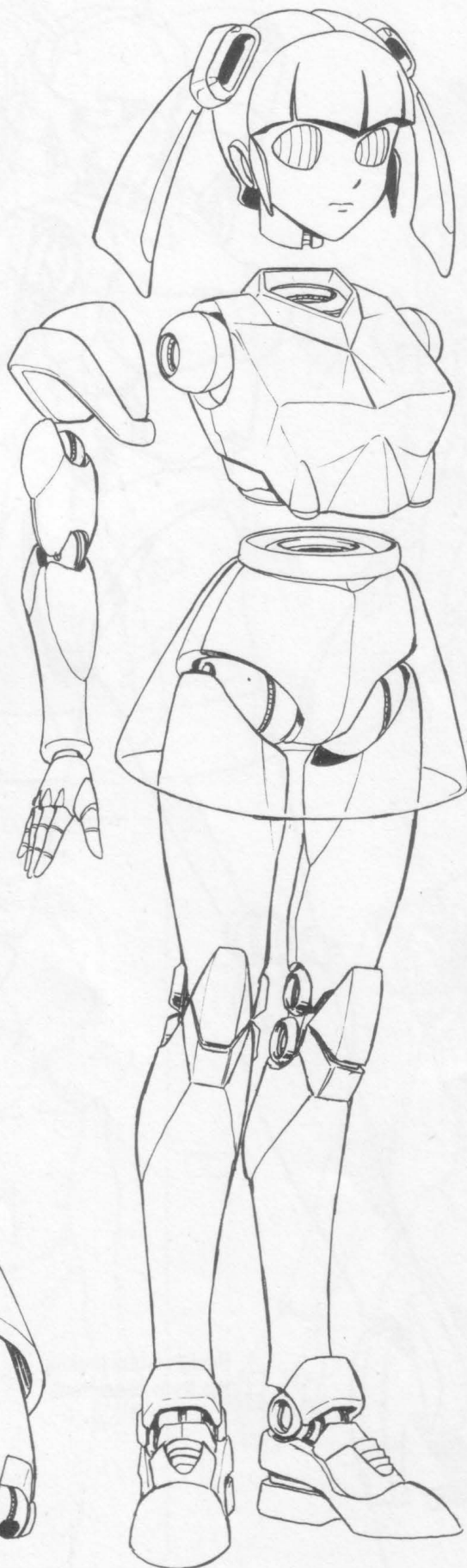
Skirts and Blouses



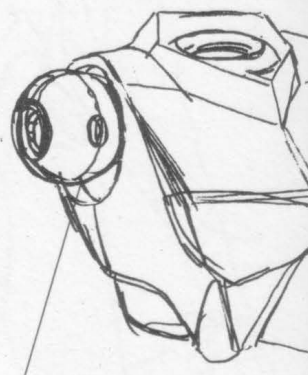
Choose the location of the crotch at the rough-sketch stage.



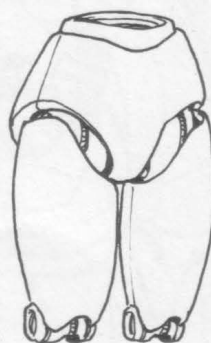
In this type the skirt and hips are solid.



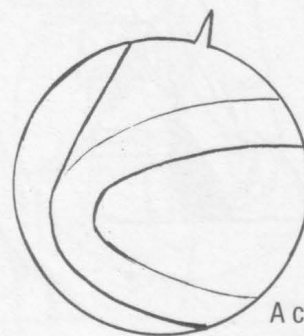
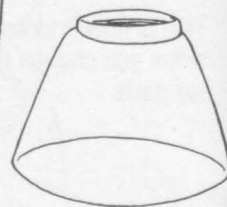
Rough sketch of hair ornament and pigtail



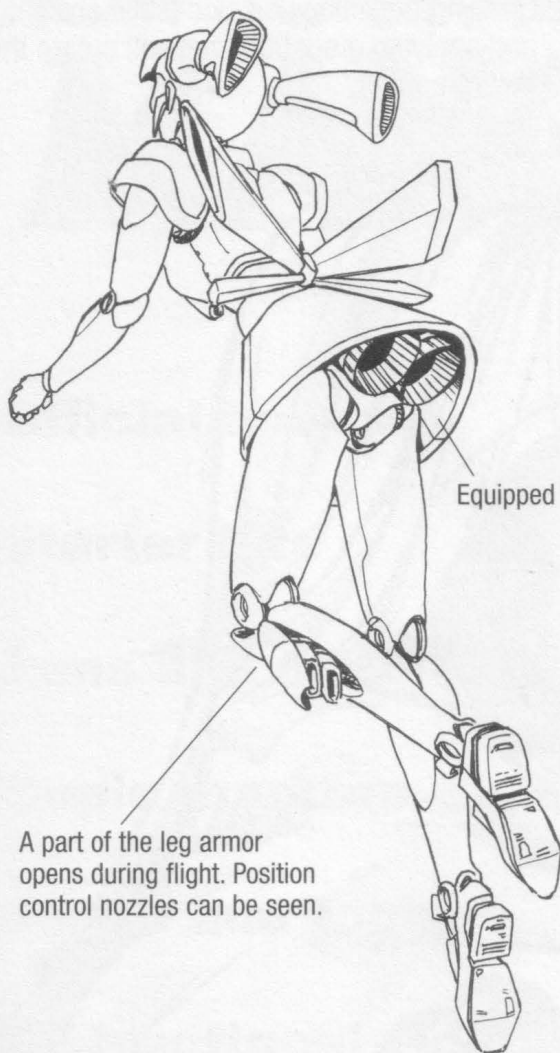
Hole in shoulder joint. Adding holes is a technique to make a robot look mechanical, but it sometimes results in a cluttered design.



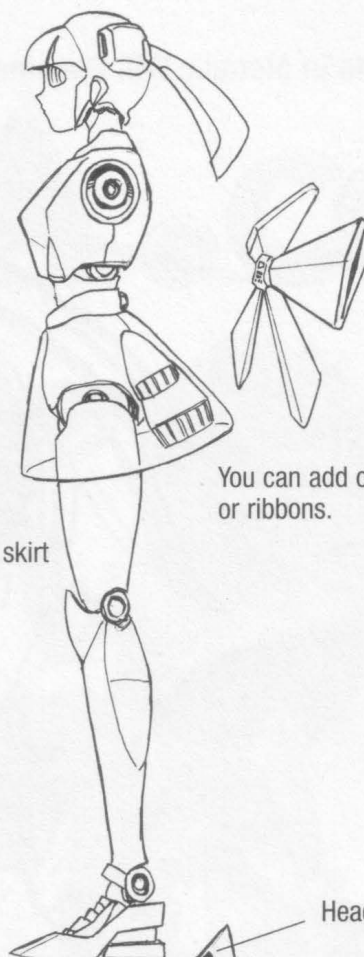
The skirt is an option, which means it can be removed.



A close-up reveals the thickness of the metal.



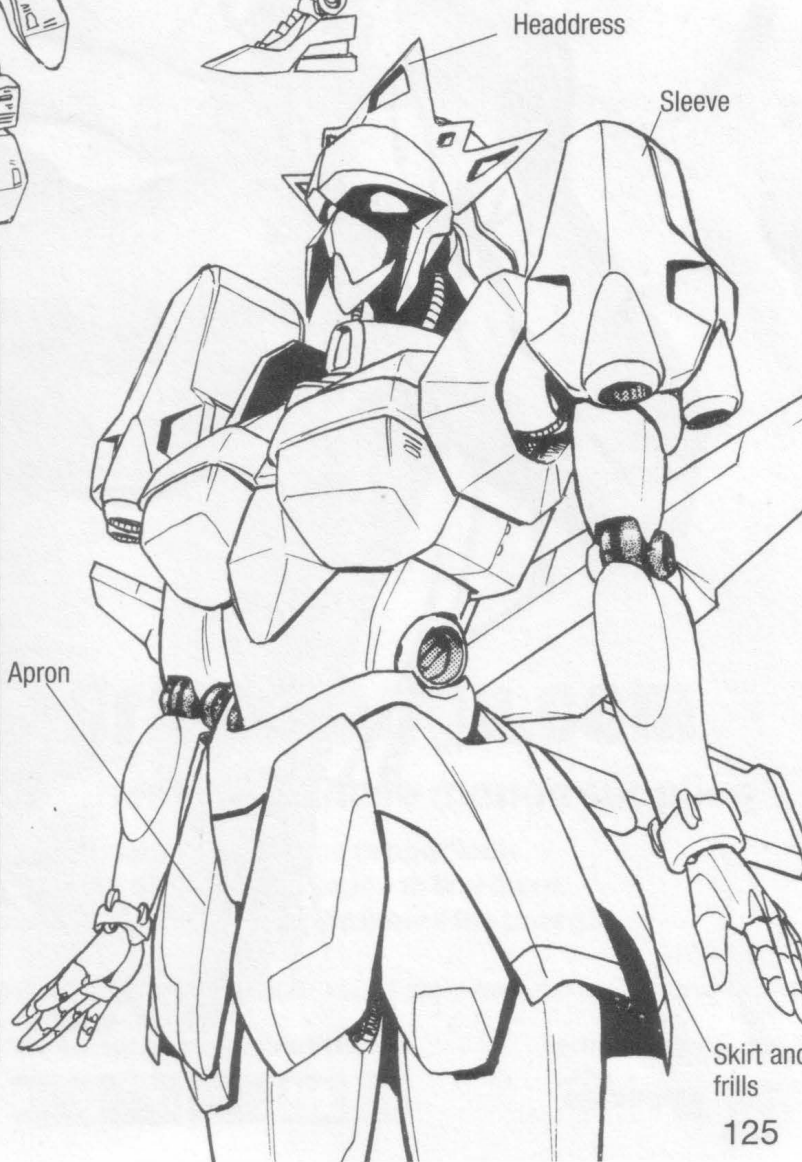
Equipped with jets in skirt



You can add optional pigtails or ribbons.



A robot based on a maid outfit will become a maid robot.



Skirt and frills

A Character Done in Metallic Will Become a Robot. Drawing reflections on skin (solid shading) and applying gradation tone will create the feel of a robot.



Original illustration



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